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PHOTOGRAPHIC INTERPRETATION REPORT

ACTIVITY AT SA-1 SAM SITES
MOSCOW, USSR

25X1D

NPIC R-5144 64

December 1964

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

DECLASSIFICATION REVIEW BY NIMA / DoD

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PREFACE

This report is in response to requirements for updated information on the unidentified activity at SA-1 SAM sites around Moscow (Figure 1). Based on coverage obtained from KEYHOLE missions between [REDACTED] the report complements a previously published NPIC report that was compiled from photography available through [REDACTED]

25X1D

25X1D

25X1D

The first part of this report provides additional analysis of the unidentified activity at most of the SA-1 SAM sites in the Moscow area. The second part provides the limited amount of information obtained from [REDACTED] on the construction of additional triads at SAM Sites E05-1 and E33-1.

25X1D

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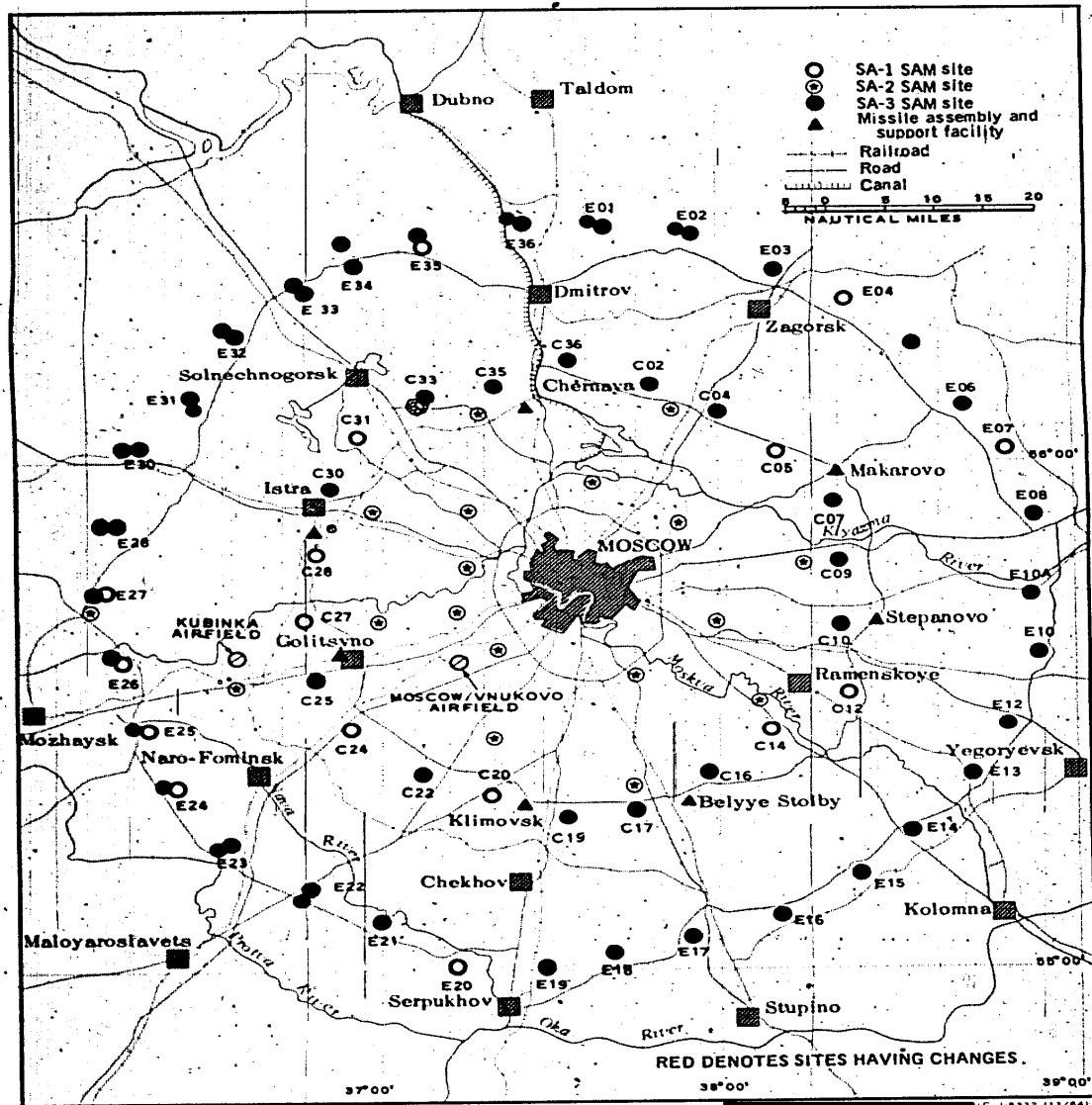


FIGURE 1. MOSCOW SA-1 SITES HAVING CONSTRUCTION ACTIVITY

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UNIDENTIFIED ACTIVITY AT MOSCOW SA-1 SAM SITES

25X1D
25X1D
Photography obtained in the [REDACTED] period revealed that the previously reported earth scarring 1/ that parallels launch rib roads at many of the launch sites has developed into parallel earthen walls that, in effect, create drive-through revetments. To date, the placement of these along the rib roads indicates that the Soviets intend to maintain the operational capability of the SA-1 launch positions. In most cases, the walls extend from the centerline road and terminate before they obstruct the first launch position on the rib road. The walls have been constructed by pushing up earth from alongside the rib road, which would account for the relatively large areas of earth scarring characteristic of these revetments. The average distance between the revetment walls is approximately 50 to 60 feet, the average height [REDACTED] and the width at the base is estimated to be 20 feet. No consistency was apparent in the length of the walls, which varied from site to site.

25X1D

25X1B

Recent coverages of Kapustin Yar/Vladimirovka Missile Test Center (KY/VMTC) and Sary-Shagan Antimissile Test Center (SSATC) were also studied to determine if construction activity similar to that underway at the Moscow SA-1 SAM sites had occurred at either test center. The prototype SA-1 SAM site in the SAM Launch Complex of KY/VMTC showed no modification of the type seen at Moscow

sites. At SSATC, Launch Complex A, Site 3, reconstruction of a former launch position was observed underway in [REDACTED] Interior measurements of the newly constructed revetment were 185 by 65 feet, which is considerably shorter than most of the drive-through

25X1D

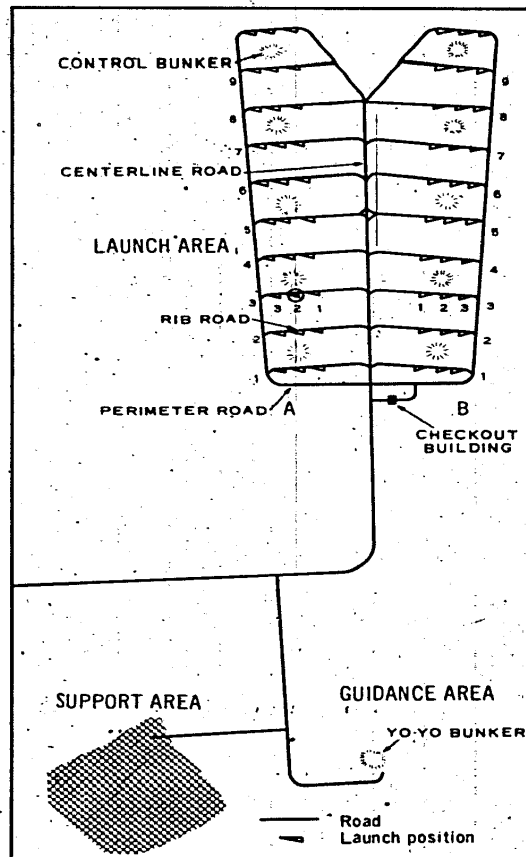


FIGURE 2. TYPICAL SA-1 SITE.

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25X1D
revetments at Moscow. Although the revetment at SSATC encompasses a launch position, only one revetment in a Moscow SA-1 site had done so through [REDACTED] (Site E10A-1).

Figure 2 repeats the referencing system adopted for the previous report. Using the guidance area as a reference point, the left side of the launch area is designated A, the right side B, and the roads as follows: the perimeter road; the centerline road; the rib roads, numbered from the rib road nearest the guidance area. Launch positions on rib roads are numbered out from the centerline road. Thus, activity at 3A2 would indicate a position on the third rib road, left side of the launch area, at the second launch position out from the centerline road, as shown in red in Figure 2.

Photographs and drawings of the affected sites follow. Photographs are printed with the guidance area at, or immediately outside, the bottom of the graphic unless otherwise indicated. Table 1 at the end of the report gives

chronology of construction activities and indicates the sites on which missile equipment has been observed in the [REDACTED] period. Because the present report complements the earlier one, item numbers in this text and in Table 1 are consecutive from the point where the earlier report left off. 1/

The reader is cautioned that measurements are only approximate because of the type of construction which is being measured. [REDACTED]

Attention is also called to the fact that all drawings are based on unrectified photography that may distort the orientation from the more exactly computed figures given in the text. Even for statements as to the absence of missile equipment at a site, the reader must remember that the small scale of the photography and the presence of foliage make absolute determination impossible.

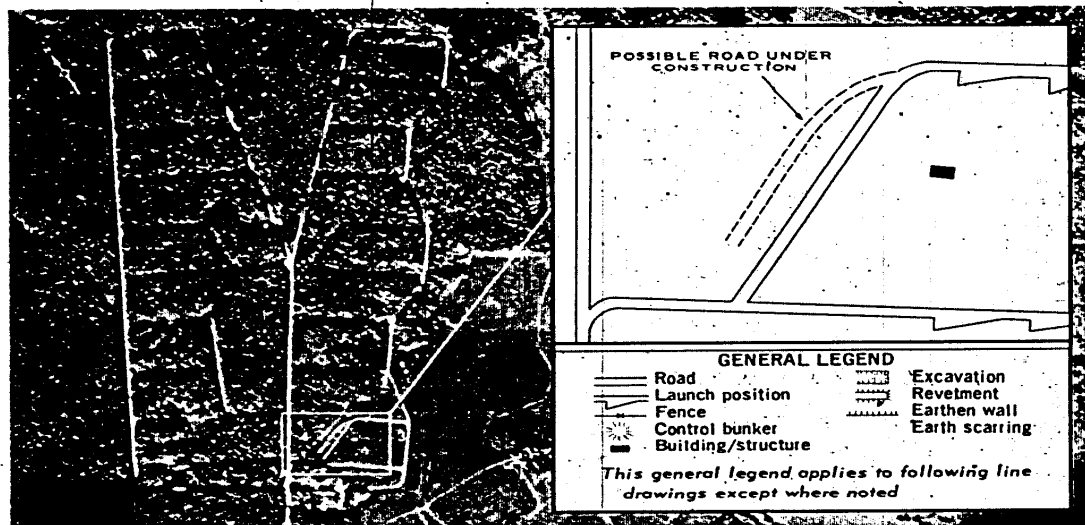


FIGURE 3. MOSCOW SAM SITE C02-1.

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SAM SITE C02.1

25X1D A possible road under construction, not
25X1D present on photography of [REDACTED] was
25X1D observed between rib roads 1B and 2B (Fig-
25X1D ure 3, item 4) on photography of [REDACTED].
The road is approximately 15 feet wide
and could provide a wider radius turn than the
present rib road does.

25X1D On photography of [REDACTED] two
areas of scarring observed on earlier coverage
were no longer discernible at points indicated
by items 2 and 3. No changes were apparent
in the guidance and support areas. Missile equip-
ment was observed in the launch area on [REDACTED]
25X1D photography.
25X1D

* SAM SITE C04.1

Photographic coverage of sharper image
quality permits refinement of previously pub-
lished measurements on the activity at this

site. The U-shaped revetment on the north side
of the launch area (Figure 4, item 1) has walls
that are 115, 85, and 135 feet long, 20 feet
wide at the base and [REDACTED]

25X1D Across the perimeter road approximately 295
25X1D feet to the south there are two parallel earthen
walls 185 feet long and 55 feet apart. The walls
are [REDACTED] wide at the base and are oriented on
azimuths of 30/210 degrees. 25X1D

A horseshoe-shaped revetment (item 2)
has two 75-foot walls joined by a 50-foot wall,
all walls being 20 feet wide at the base and an
[REDACTED]. This revetment was first
observed on [REDACTED] coverage in the
previously reported scarring parallel to rib road
9B. Orientation of the revetment is [REDACTED]
degrees. Missile equipment was observed within
the launch area on [REDACTED] photography. 25X1D
No change⁹ were apparent in the support or
guidance areas since the previous report. 25X1D

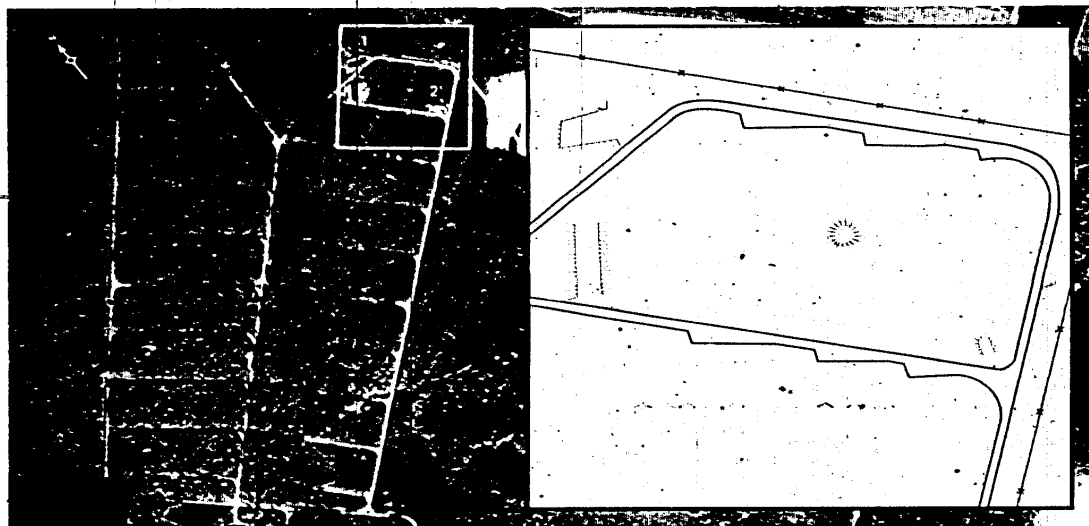


FIGURE 4. MOSCOW SAM SITE C04.1.

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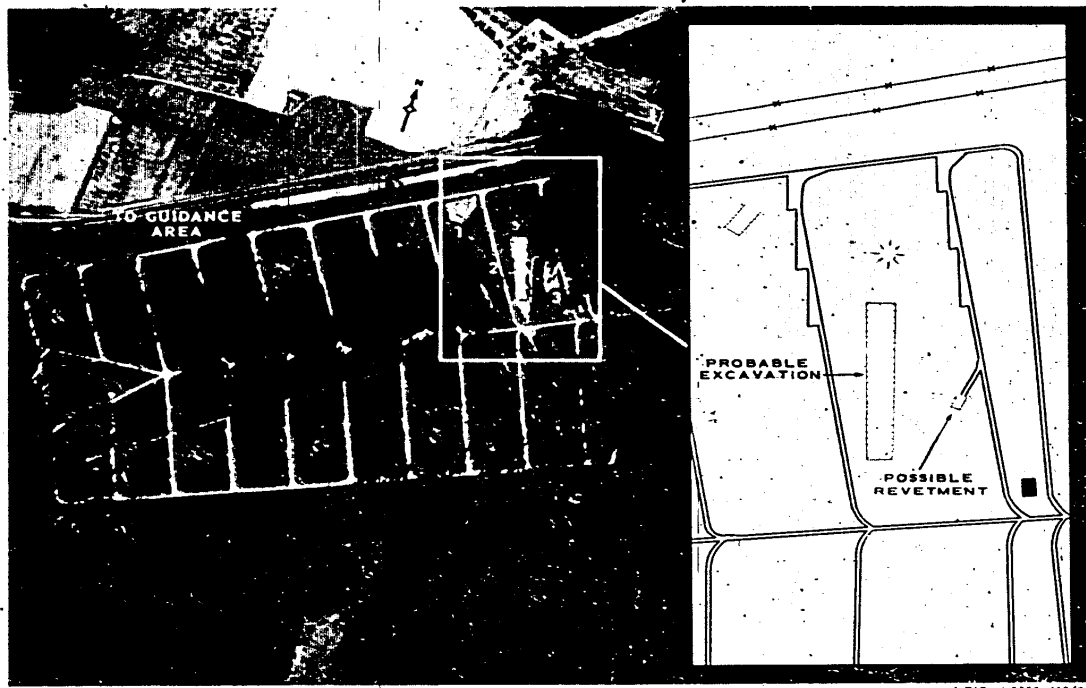


FIGURE 5. MOSCOW SAM SITE C07-1.

SAM SITE C05-1 (NO FIGURE)

25X1D No apparent changes were observed at this site between [REDACTED] nor was missile equipment discernible. The site is in a heavy stand of trees and many of the launch positions were not observed.

SAM SITE C07-1

25X1D On photography of [REDACTED] a probable U-shaped revetment (Figure 5, item 1) was identified between rib roads 7A and 8A, but measurements were not furnished. Based on the [REDACTED] photography, the dimen-

sions were determined to be 140 by 75 by 140 feet with walls 15 feet wide at the base and approximately 15 feet high. Orientation of the revetment is [REDACTED] A rectangular probable excavation (item 2) was first identified between rib roads 8A and 9A on photography of [REDACTED] The long axis of the probable excavation is oriented on an azimuth of [REDACTED] degrees.

[REDACTED] photography revealed a possible revetment (item 3) adjacent to the east side of the probable excavation and connected by road to rib road 9A. Orientation of the possible revetment is [REDACTED]

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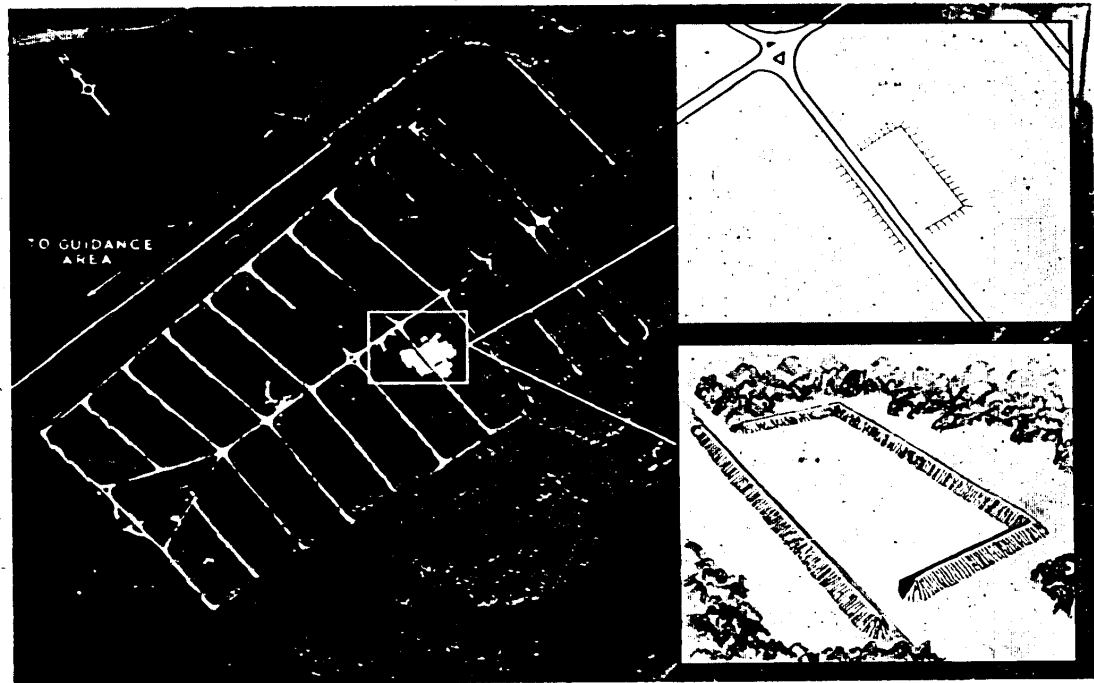


FIGURE 6. MOSCOW SAM SITE C09-1.

NPIC J-6927 (12/64)

Missile equipment was observed within the launch area on [REDACTED] coverages. No apparent changes were observed in the guidance or support areas.

SAM SITE C09-1

On photography of [REDACTED] earth scarring was observed on the east side of rib road 6B, and the scarring had increased in area on the subsequent photography of [REDACTED] a U-shaped revetment (Figure 6, Item 1) with two 135-foot walls joined by a 275-foot wall had been constructed in the scarred area. The walls are

25 feet wide at the base and approximately [REDACTED] feet high. Opposite the revetment, on the west side of the rib road and parallel to the road, there is an earthen wall 275 feet long, 20 feet wide, and [REDACTED] high. This wall, in relation to the U-shaped revetment across the road, in effect creates a four-sided drive-through revetment with rib road 6B providing north-south access.

Missile equipment was observed within the launch area on [REDACTED] photography. No apparent changes were observed in the guidance or support areas.

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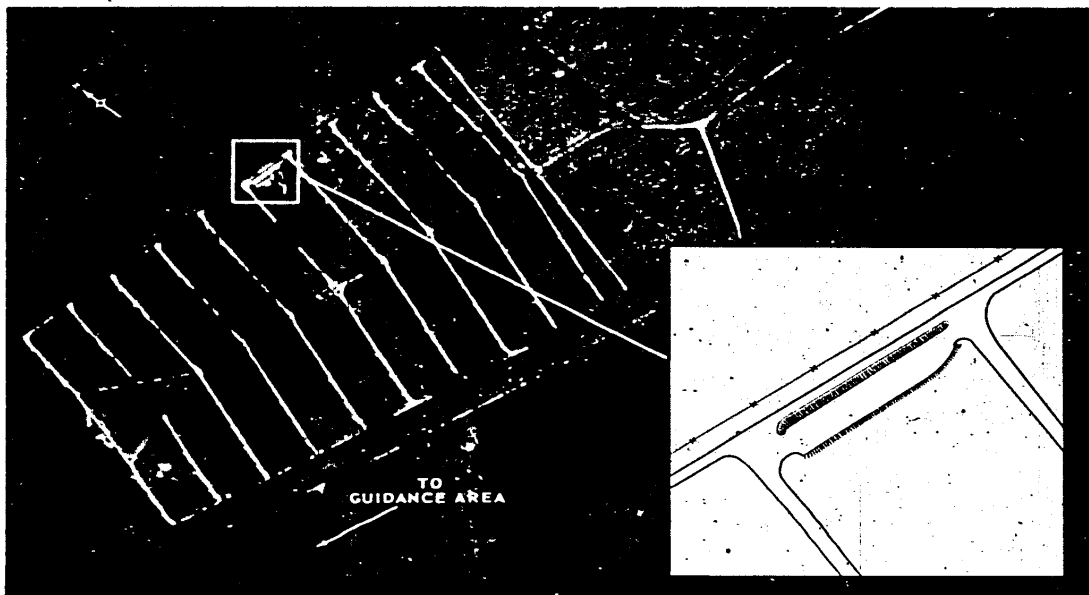


FIGURE 7. MOSCOW SAM SITE C10-1.

SAM SITE C10-1

25X1D Two parallel earthen walls were identified
on photography of [REDACTED] between rib
roads 5A and 6A and parallel to the perimeter
road (Figure 7, item 1). The walls create
a drive-through revetment with openings to
rib road 5A on the west and to 6A on the
25X1D east. The walls are 425 feet long, 20 feet
wide at the base, approximately [REDACTED] high,
and they are 70 feet apart at the west end
but converge to a [REDACTED] opening at the east
25X1D end. Orientation of the revetment is [REDACTED]
25X1D degrees.

25X1D Missile equipment was observed in the
launch area on the [REDACTED] coverage.
No changes were apparent in the support or
guidance areas.

SAM SITE C12-1

There has been no apparent change in the
activity first observed between rib roads 2B
and 3B on photography of [REDACTED]. The
25X1D previously reported walls or structures are
now confirmed as earthen walls forming a
rectangular revetment (Figure 8, item 1). Two
of the walls are 315 feet long, two are 255
feet long, and all are 30 feet wide at the base
and approximately 15 feet high. Access into
this revetment is limited to a single opening
at the southeast corner of the revetment at
rib road 3B. Orientation of the revetment is
[REDACTED]

25X1D Missile equipment was observed within
the launch area on the [REDACTED]
25X1D [REDACTED] coverages. No apparent changes
were observed in the support or guidance areas.

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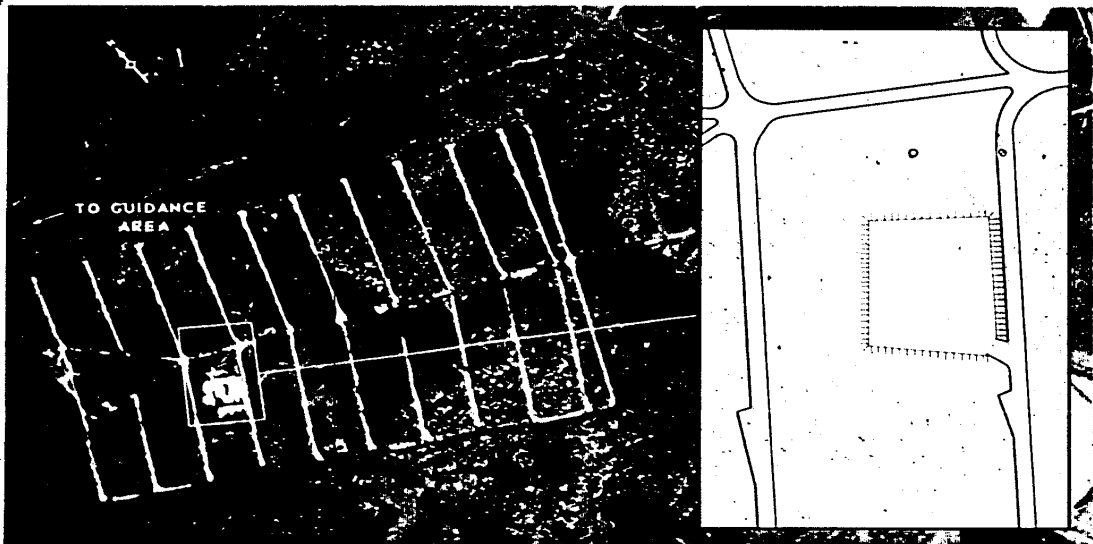


FIGURE 8. MOSCOW SAM SITE C12-1.

SAM SITE C14-1

No apparent changes have been observed at the site since [REDACTED] but inexplicable activity along an improved road near the site has not been reported previously. The road extends west-northwest/east-southeast, is approximately 35 feet wide, and has been improved for 16,000 feet. At the western terminus there is a loop turnaround (not shown in Figure 9), and at the eastern end of the improved section there is a semicircular area of scarred earth (Figure 9, item 1) containing an unidentified object. The distance from the outer edge of the semicircle to the near edge of the road is 305 feet.

Two smaller semicircles have been cleared along the north side of the road, approximately 3,335 feet (item 2) and 7,085 feet (item 3) west of the large semicircle. The distance from the outer edge of the semicircle to the

near edge of the road at each of these semicircles is 95 feet.

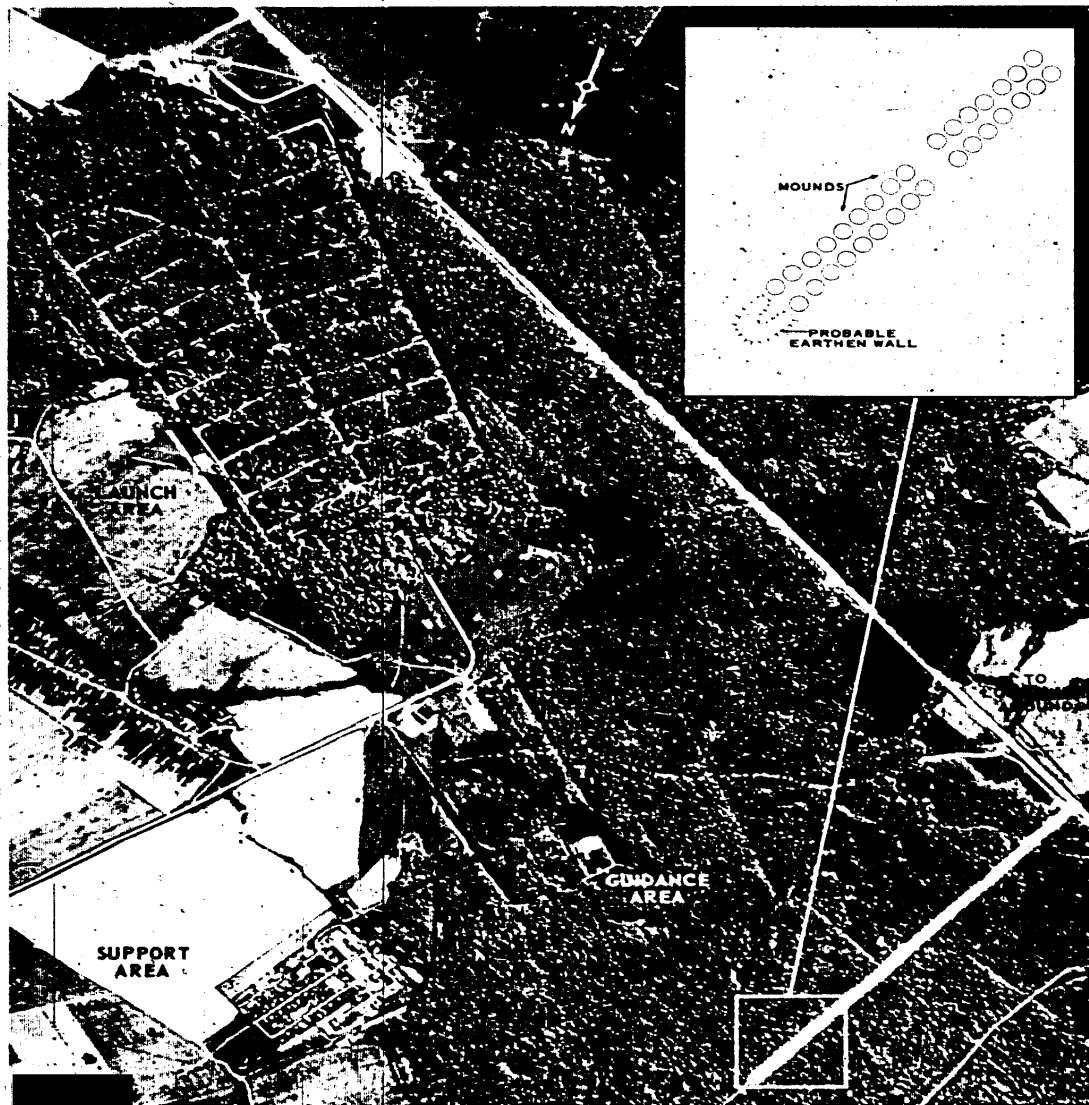
Approximately 10,885 feet west of the large semicircle there is a linear scar 105 feet wide (item 4) that extends 4,660 feet in a north-northeast direction. In the northern half of the linear area there are two rows of light-toned mounds positioned [REDACTED] in from the sides of the cleared area, with a [REDACTED] separation down the middle. The mounds are approximately 35 feet wide, range in height from [REDACTED]

As early as [REDACTED] activity was observed in the area of the large semicircular clearing. All of the other features were present in [REDACTED] and appear unchanged in [REDACTED]. Missile equipment was observed in the launch area on photography of [REDACTED]

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25X1D

FIGURE 9. MOSCOW SAM SITE C14-1.

NFIC J 0304 (12/64)

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25X1D

FIGURE 10. MOSCOW SAM SITE C16-1.

SAM SITE C16-1

25X1D

Two horseshoe-shaped revetments were identified on [REDACTED] photography on the north side of rib road 9A in the area of a previously reported curved scar (Figure 10, item 1). One revetment has walls 85, 50, and 70 feet long, and 15 feet wide at

the base; [REDACTED]

The other revetment has walls 80, 40, and 70 feet long, and 10 feet wide at the base; its orientation is 95/275 degrees.

Missile equipment was observed in the launch area on [REDACTED] coverages. No apparent changes were observed in the support or guidance areas.

25X1D

25X1D

25X1D

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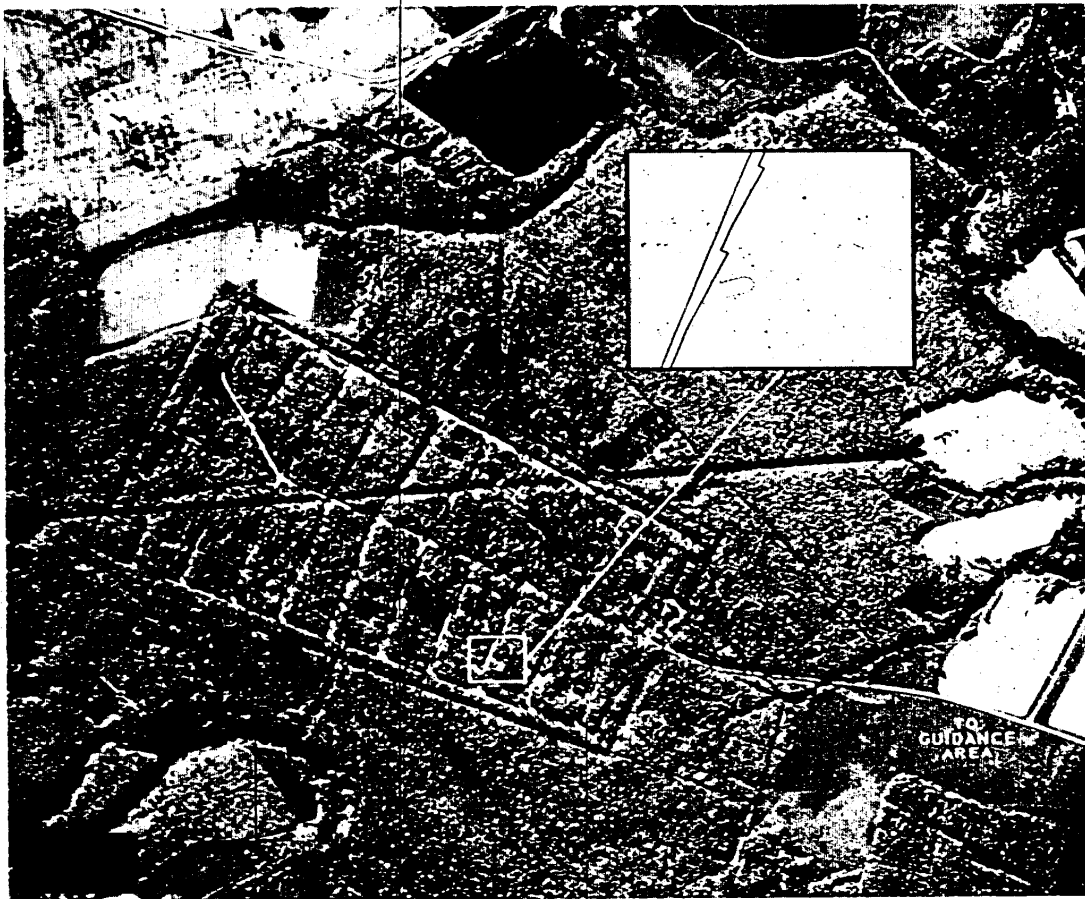
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25X1D

FIGURE 11. MOSCOW SAM SITE C17-1.

SAM SITE C17-1

25X1D A horseshoe-shaped revetment was identified on the north side of rib road 3A (Figure 11, item 1) on photography of [REDACTED]. The revetment has walls 65, 35, and 65 feet

long and approximately 10 feet wide at the base. Orientation of the revetment is [REDACTED]

Missile equipment was observed in the launch area on the [REDACTED] coverages. No changes were apparent in the support or guidance areas.

25X1D

25X1D

25X1D

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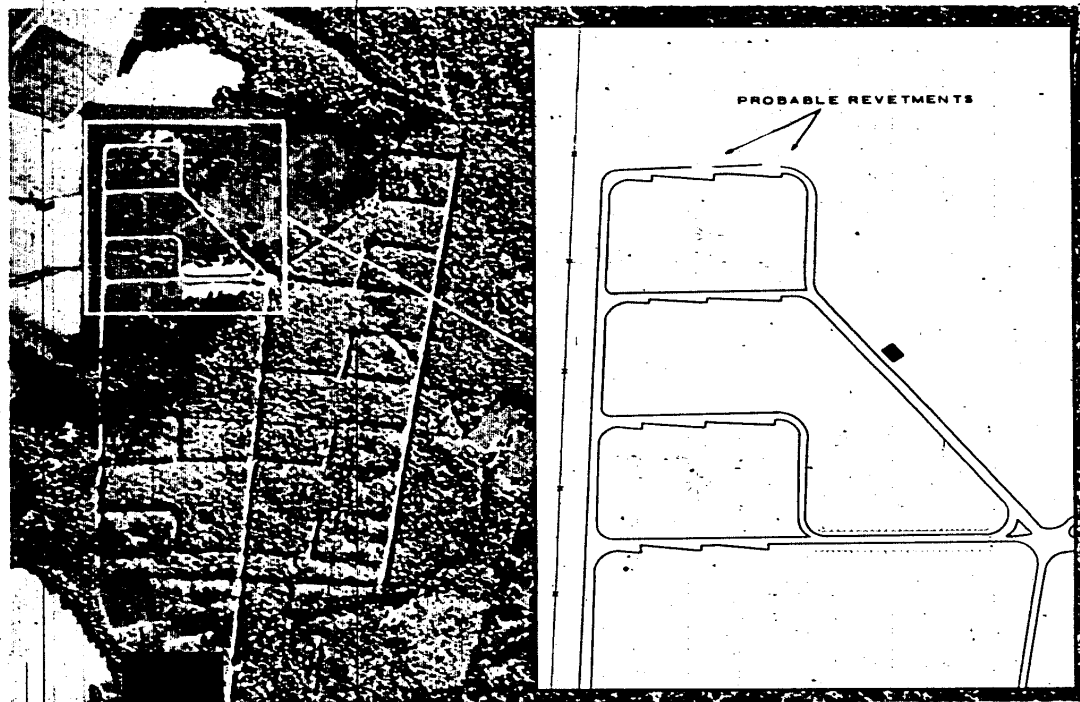


FIGURE 12. MOSCOW SAM SITE C19-1.

SAM SITE C19-1

On photography of [REDACTED] it was determined that earth had been scraped toward the south side of rib road 5A to form an earthen wall paralleling the road (Figure 12, item 1). The wall is 650 feet long, 20 feet wide at the base, and approximately [REDACTED]

[REDACTED] the same type of construction was apparent on the north side of the rib road, creating a drive-through revetment 650 feet long, with walls 20 feet wide at the base and an esti-

mated 15 feet high. The distance between the walls is 50 feet, and the orientation of the revetment is [REDACTED]

On the same coverage, two probable horse-shoe-shaped revetments of undetermined size (item 2) were observed on the south side of the perimeter road. Approximate orientations for these probable revetments are [REDACTED] 50/230 degrees.

No missile equipment was discernible on [REDACTED] coverages, nor were any changes apparent in the guidance or support areas.

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25X1D

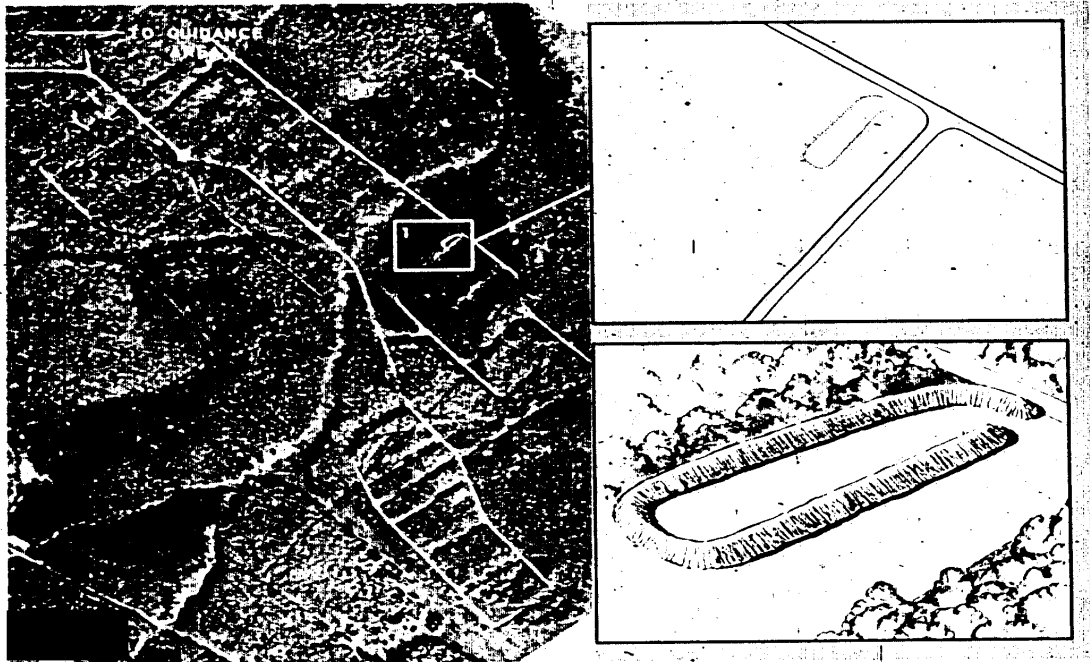


FIGURE 13. MOSCOW SAM SITE C20-1.

25X1D

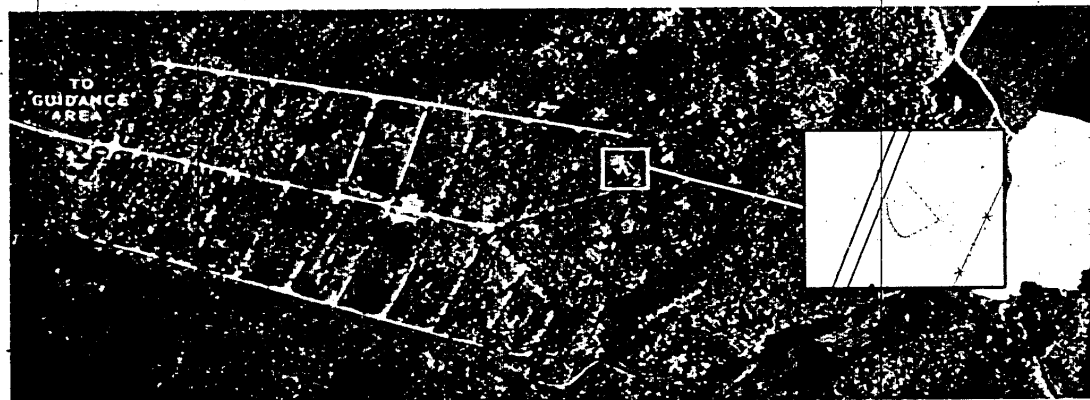


FIGURE 14. MOSCOW SAM SITE C22-1.

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SAM SITE C20-1

25X1D The previously reported cut or excavation at 6A3 has been identified on [REDACTED] photography as a revetment with walls that are 195, 50, and 185 feet long and approximately 15 feet wide at the base (Figure 13, item 1). Orientation of the revetment is [REDACTED] degrees.

25X1D Missile equipment was noted in the launch area on [REDACTED] photography. No changes were apparent in the guidance or support areas.

SAM SITE C22-1

A horseshoe-shaped revetment was identified, on [REDACTED] photography, outside the perimeter road at the southeast corner of the launch area (Figure 14, item 2). Walls of the revetment are 80, 60, and 70 feet long and orientation of the revetment is [REDACTED]

No missile equipment was discernible on the [REDACTED] coverages, nor were any changes apparent in the support or guidance areas.



FIGURE 15. MOSCOW SAM SITE C24-1.



25X1D

FIGURE 16. MOSCOW SAM SITE C25-1.

SAM SITE C24-1

25X1D

There has been no apparent change in the site since [REDACTED] however, subsequent photography permits more precise measurements of the previously reported revetment between rib roads 2B and 3B (Figure 15, item 1).

25X1D

The revetment is rectangular with 235- and 190-foot walls which are [REDACTED] wide at the base and approximately 15 feet high. Access to rib roads 2B and 3B is provided by 35-foot openings in the east and west walls. Orientation of the revetment is [REDACTED] degrees. A 140-foot long wall, 20 feet wide at the base and approximately [REDACTED] high, extends northward from the revetment toward rib road 2B.

25X1D

25X1D

25X1D

No missile equipment was discernible on the [REDACTED] coverages.

SAM SITE C25-1

A generally rectangular revetment under construction was identified on photography of [REDACTED] at the northeast corner of the launch area, where ground scarring had previously been reported (Figure 16, item 1). Walls of the revetment are 350, 165, 440, and 150 feet long, 25 feet wide at the base, and an estimated 15 feet high. A 95-foot opening at the southwest corner of the revetment provides access to the launch area; and a second opening, at the opposite end of the south wall of the revetment, is 30 feet wide. Orientation of the revetment is 65/245 degrees.

25X1D

No missile equipment was discernible on photography of [REDACTED] No apparent changes were observed in the support or guidance areas.

25X1D

25X1D

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25X1D

FIGURE 17. MOSCOW SAM SITE C27-1.

SAM SITE C27-1

25X1D Photography of [REDACTED] confirmed the existence of two parallel earthen walls between rib roads 2A and 3A (Figure 17, item 1). The walls have a chevron configuration with segments 190 and 205 feet long,

25X1D

[REDACTED] No changes were apparent in the guidance or support areas. No missile equipment was discernible in the launch area on photography of [REDACTED]

25X1D

SAM SITE C28-1

No changes have been observed in the site since [REDACTED] however, subsequent photog-

25X1D

25X1D

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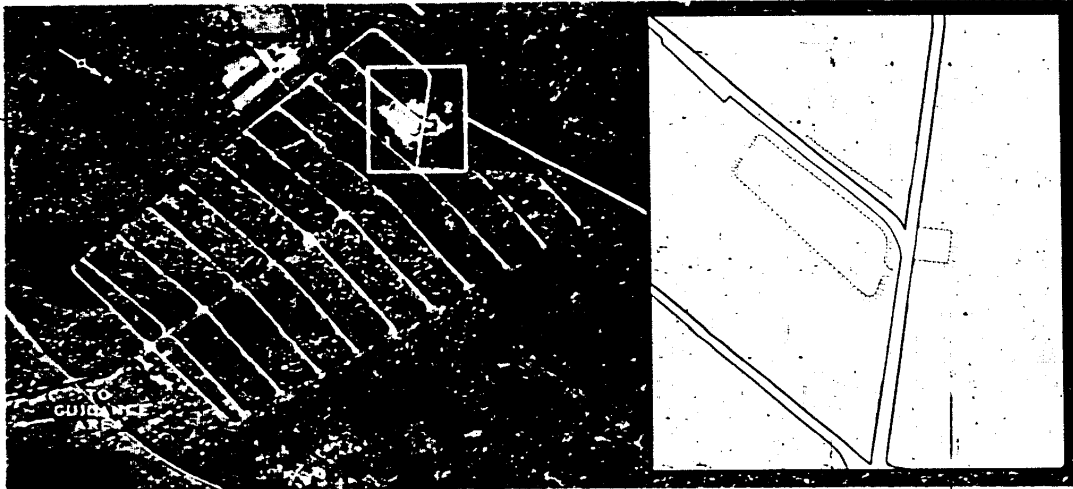
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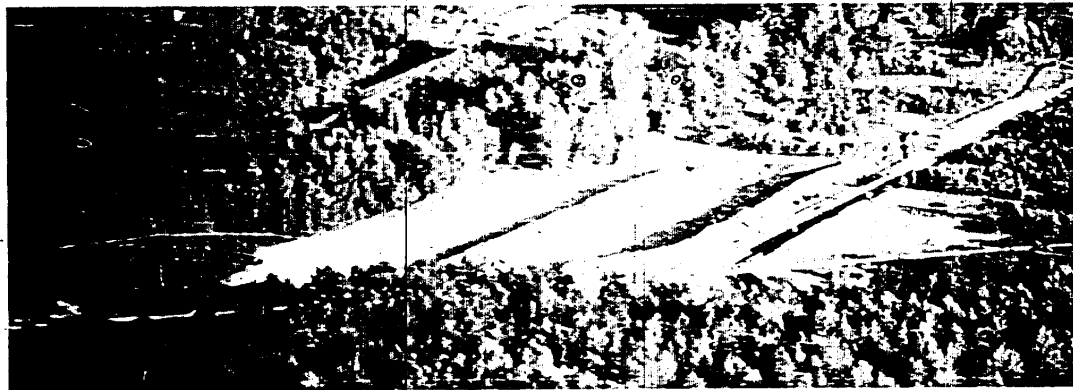
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25X1D



25X1D

FIGURE 16. MOSCOW SAM SITE C28-1.

raphy permits refinement of the previously reported measurements of the revetment between rib roads 8A and 9A (Figure 18, item 1). The walls measure 390, 335, 170, and 120 feet in length and all are 20 feet wide at the base and an estimated [redacted] high. A 30-foot opening in the north wall provides access to the

25X1D

perimeter road, and a 20-foot opening in the south wall gives access to rib road 9A. Orientation of the revetment is [redacted] degrees. On the west side of rib road 9A, a 200-foot wall has been constructed parallel to the road, in effect creating a 200-foot drive-through revetment. The wall is 20 feet wide at the base

25X1D

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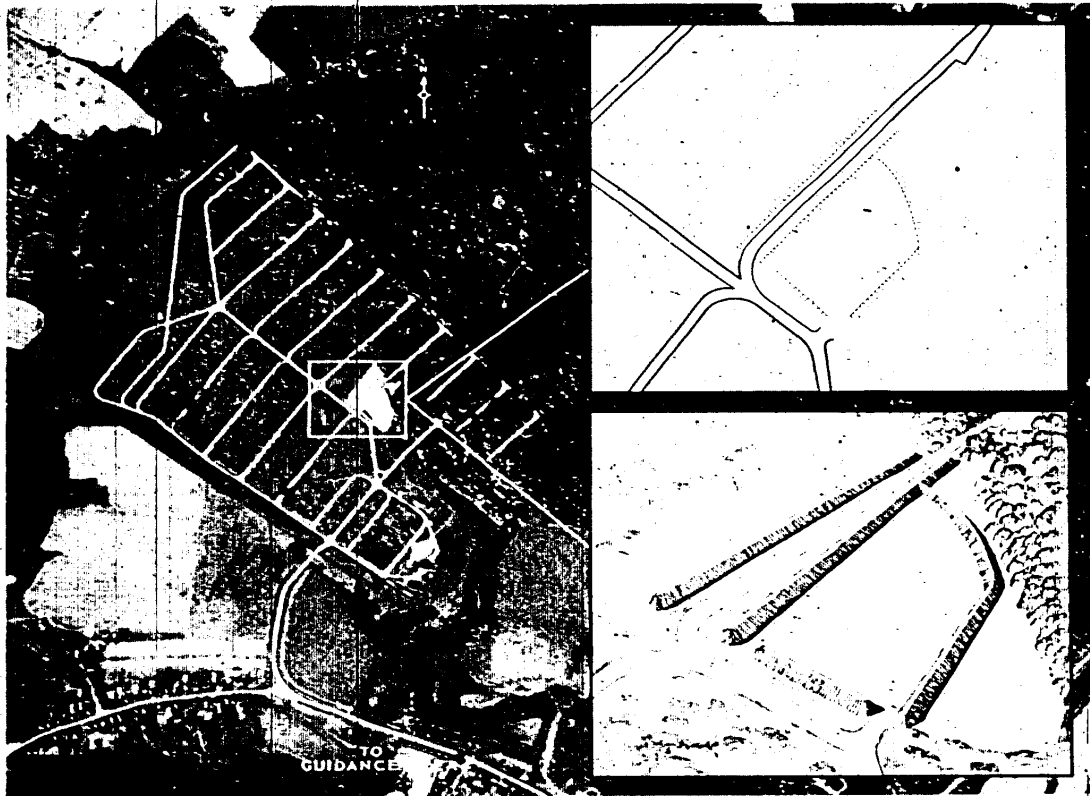


FIGURE 19. MOSCOW SAM SITE C30-1.

25X1D and approximately [REDACTED] high. Orientation
of the revetment [REDACTED] degrees. Large-
25X1D scale photography of [REDACTED] shows that
these revetments are constructed by pushing
earth up from the nearby area to produce
the earthen walls.

25X1D Across the perimeter road (item 2) there
is a U-shaped revetment with walls 60, 65,
and 60 feet long, 20 feet wide at the base, and
approximately [REDACTED] high. Orientation of
the revetment [REDACTED] degrees.

No missile equipment was discernible in
the launch area on the coverage of [REDACTED]

SAM SITE C30-1

A revetment was identified on photography
of [REDACTED] in the area of previously re-
ported ground scarring on the south side of rib
road 3B (Figure 19, item 1). Walls of the re-
vetment are 455, 160, 255, and 230 feet long,
[REDACTED] wide at the base, and approximately 15

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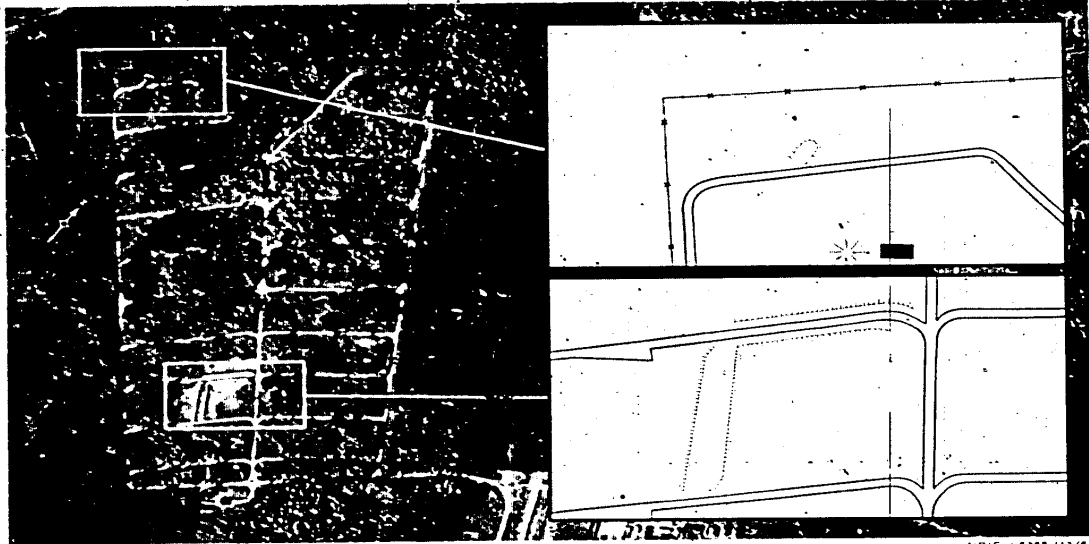


FIGURE 20. MOSCOW SAM SITE C33-1.

SAM SITE C33-1

25X1D feet high. Orientation of this revetment is 25X1D degrees. Two 20-foot openings in the western wall of the revetment provide access to the interior from the centerline road. Across rib road 3B; a 465-foot earthen wall has been constructed parallel to the rib road and the 455-foot wall of the other revetment. Distance between the two walls is 55 to 60 feet, and orientation of the drive-through revetment so created is 35/215 degrees.

25X1D No missile equipment was discernible on the 25X1D coverage, nor had there been any apparent changes in the support or guidance areas since 25X1D

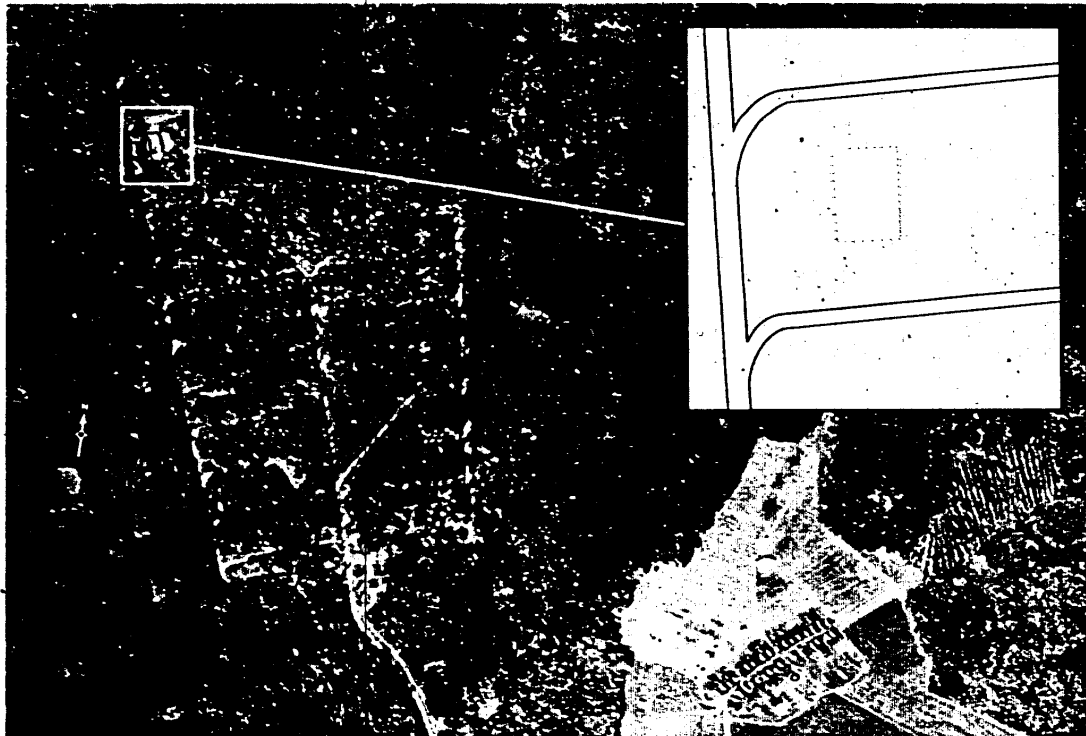
SAM SITE C31-1 (NO FIGURE)

25X1D No changes have been observed at this site since 25X1D Missile equipment 25X1D was identified in the launch area on 25X1D

A horseshoe-shaped revetment with walls 80, 45, and 80 feet long was observed on 25X1D photography in the previously reported 25X1D scarred area at the northwest corner of the launch area, outside the perimeter road (Figure 20, item 1). Orientation of this revetment is 25X1D degrees.

25X1D An L-shaped earthen revetment was also observed between rib roads 2A and 3A (item 2) in an area of earth scarring that has been present since 25X1D To compose the base of the L, parallel walls have been constructed on opposite sides of rib road 3A, the northern wall being 455 feet long, the southern one 375 feet long, and the two being 55 feet apart. The stem of the L-shaped revetment is perpendicular to rib roads 2A and 3A, with an opening at the northwest corner to per-

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25X1D

FIGURE 21. MOSCOW SAM SITE C35-1.

mit rib road 3A to pass through. The western wall of the stem is 505 feet long and the eastern wall is 450 feet long. Orientation of the base is

25X1D

25X1D Missile equipment was observed in the launch area on [REDACTED] photography. No changes were apparent in the support or guidance areas.

SAM SITE C35-1

25X1D A U-shaped earthen wall had been constructed by [REDACTED] on the west side of

the previously reported earthen wall 1/ between rib roads 10A and 11A (Figure 21, item 1), in effect creating a four-sided revetment with two walls 205 feet long and two 120 feet long. Walls are 20 feet wide at the base and estimated to be [REDACTED] high. A 30-foot opening in the north wall provides access into the revetment, whose orientation is [REDACTED] degrees.

25X1D

25X1D

No changes were apparent in the support or guidance areas. Missile equipment was not discernible on the [REDACTED] coverage.

25X1D

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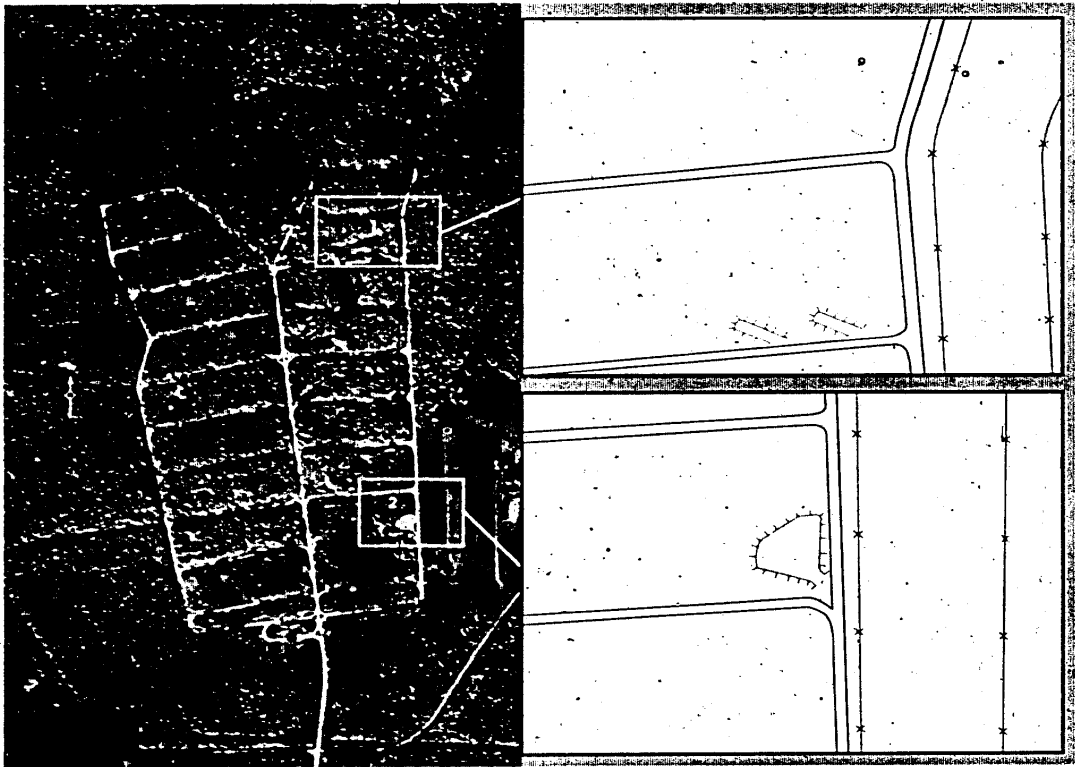


FIGURE 22. MOSCOW SAM SITE C36-1.

SAM SITE C36-1

25X1D . Photography of [REDACTED] permits re-
finement of the mensural data previously re-
ported for the revetments between rib roads
8B and 9B (Figure 22, item 1). One revetment
is 140 feet long, the second is 130 feet long and
both have walls 20 feet wide at the base and
25X1D approximately [REDACTED] high. Orientations of the
25X1D two revetments are [REDACTED] de-
grees, respectively.

An irregular earthen revetment was also
observed on the [REDACTED] photography in
the previously reported scarred area between rib
roads 2B and 3B (item 2). The five-sided
revetment has walls 200, 185, 175, 85, and 75
feet long; all are 20 feet wide at the base and
approximately [REDACTED] high.

Missile equipment was not discernible on
either the [REDACTED]
coverages. No changes were apparent in the
support or guidance areas.

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FIGURE 23. MOSCOW SAM SITE E01-1.

SAM SITE E01-1

A second earthen wall was observed, on photography of [REDACTED] parallel to a previously reported wall 1/ between rib roads 7B and 8B (Figure 23, item 1). The construction of this wall creates a drive-through revetment with walls 20 feet wide at the base, [REDACTED] high, and 65 feet apart. The revetment is constructed of straight sections of wall so arranged as to give the overall revetment a semicircular configuration. Measurements for sections of

the west wall are 125, 260, and 140 feet; sections of the east wall measure 115, 210, and 115 feet. Orientation of the revetment is 5/185 degrees.

Missile equipment was observed in the launch area on the [REDACTED] missions. No apparent changes were observed in the guidance or support areas.

An SA-3 SAM site of the F configuration has been constructed 1,635 feet east of the revetment. This site was not present on photography of [REDACTED]

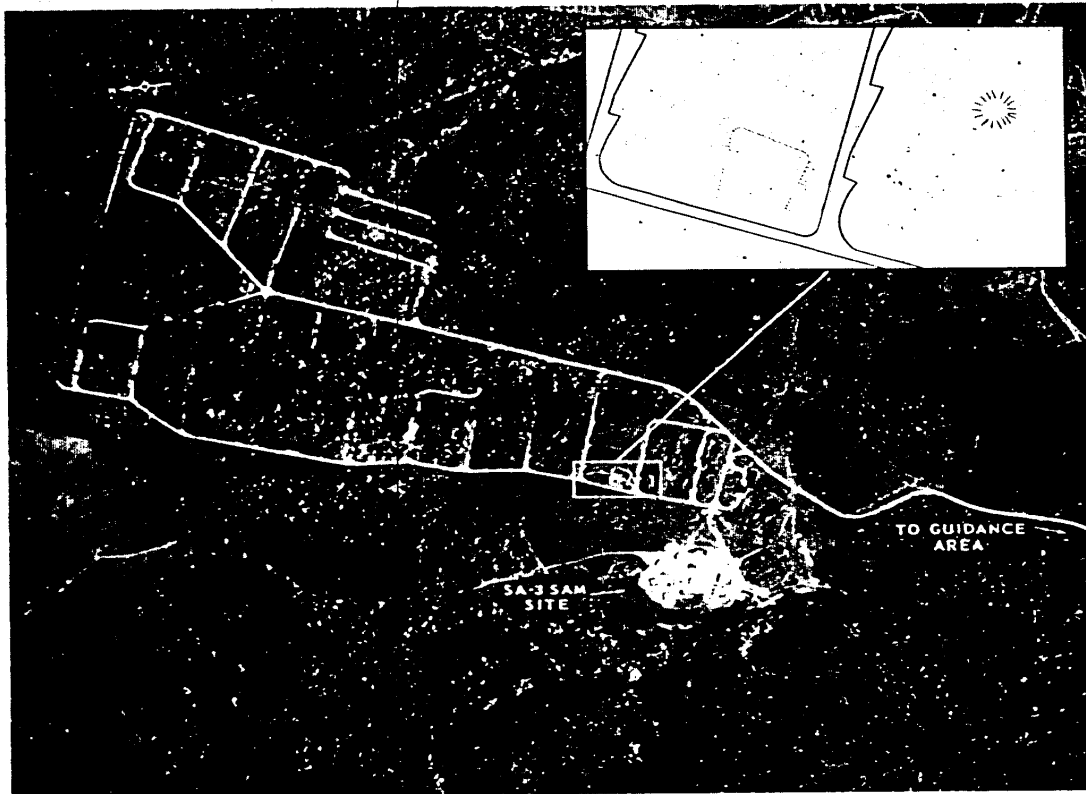
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25X1D

FIGURE 24. MOSCOW SAM SITE E02-1.

SAM SITE E02-1

25X1D. A U-shaped earthen revetment (Figure 24, Item 1) has been identified on photography of [REDACTED] in the previously reported clearing between rib roads 2A and 3A. Walls of the revetment are 195, 175, and 155 feet long, 20 feet wide at the base, and approximately [REDACTED] high. Approximate orientation of the revetment is [REDACTED] degrees.

25X1D.
25X1D

No missile equipment was discernible on the [REDACTED] coverages. No changes were observed in the guidance or support areas.

25X1D

An SA-3 SAM site of the F configuration was first observed on the [REDACTED] photography adjacent to the southwest corner of the SA-1 launch area. The site was not present on the [REDACTED] coverage.

25X1D

25X1D

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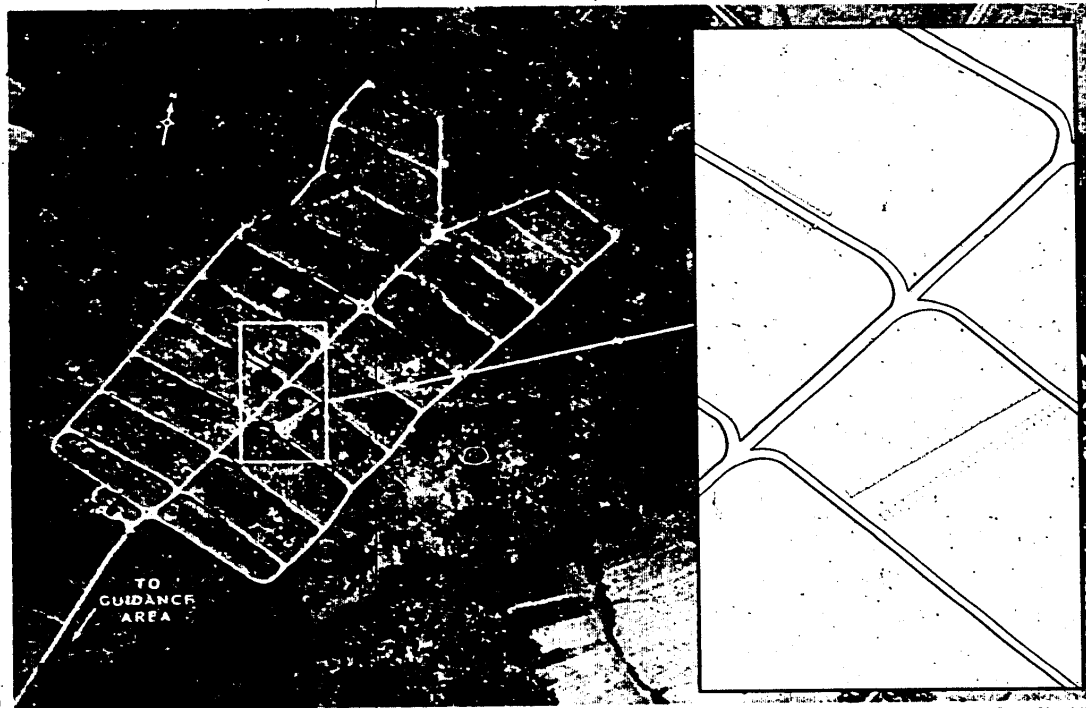


FIGURE 25. MOSCOW SAM SITE E03-1.

SAM SITE E03-1

Two parallel earthen walls (Figure 25, item 1) had been constructed by [REDACTED] between rib roads 3B and 4B in the area of previously reported scarring observed on [REDACTED] coverage. 1/ Walls are 435 feet long, 20 feet wide, and approximately [REDACTED] high, forming a drive-through revetment with an orientation of [REDACTED] degrees.

Two parallel earthen walls were observed on [REDACTED] photography on opposite sides of rib road 4A (item 2). The walls are 310 feet long, 20 feet wide at the base, and

approximately [REDACTED] high, and were constructed by scraping earth up along both edges of the road to form a drive-through revetment oriented [REDACTED] degrees.

Missile equipment was observed within the launch area on the [REDACTED] coverages. No changes were apparent in the support or guidance areas.

SAM SITE E04-1 (NO FIGURE)

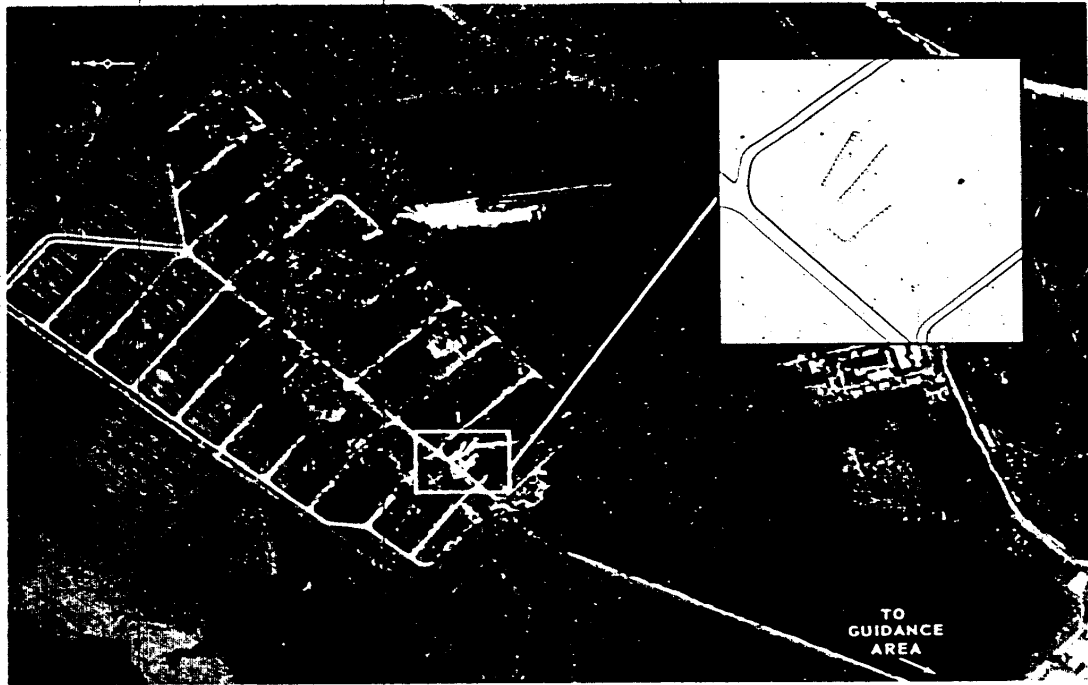
The two areas of scarring observed in the launch area on photography of [REDACTED] appear indistinct on the [REDACTED] coverage, indicating that the scarred areas

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25X1D

FIGURE 26. MOSCOW SAM SITE E06-1.

25X1D

25X1D

have probably been overgrown by vegetation. Missile equipment was observed within the launch areas on the [REDACTED] coverages. No changes were observed in the support or guidance areas.

SAM SITE E05-1
(See page 47)

SAM SITE E06-1

25X1D

On photography of [REDACTED] two straight earthen walls and an L-shaped earthen wall (Figure 26, item 1) were identified in the previously reported scarred area between rib roads 1B and 2B. The stem

of the L-shaped wall is 140 feet long and the base is 40 feet long; one straight wall is 200 feet long, and the other is 185 feet long.

Missile equipment was observed in the launch area on the [REDACTED] photography. No changes were observed in the support or guidance areas.

25X1D

SAM SITE E07-1 (NO FIGURE)

No changes were apparent in the launch, guidance, or support areas since [REDACTED]. No missile equipment was discernible in the launch area on [REDACTED] photography.

25X1D

25X1D

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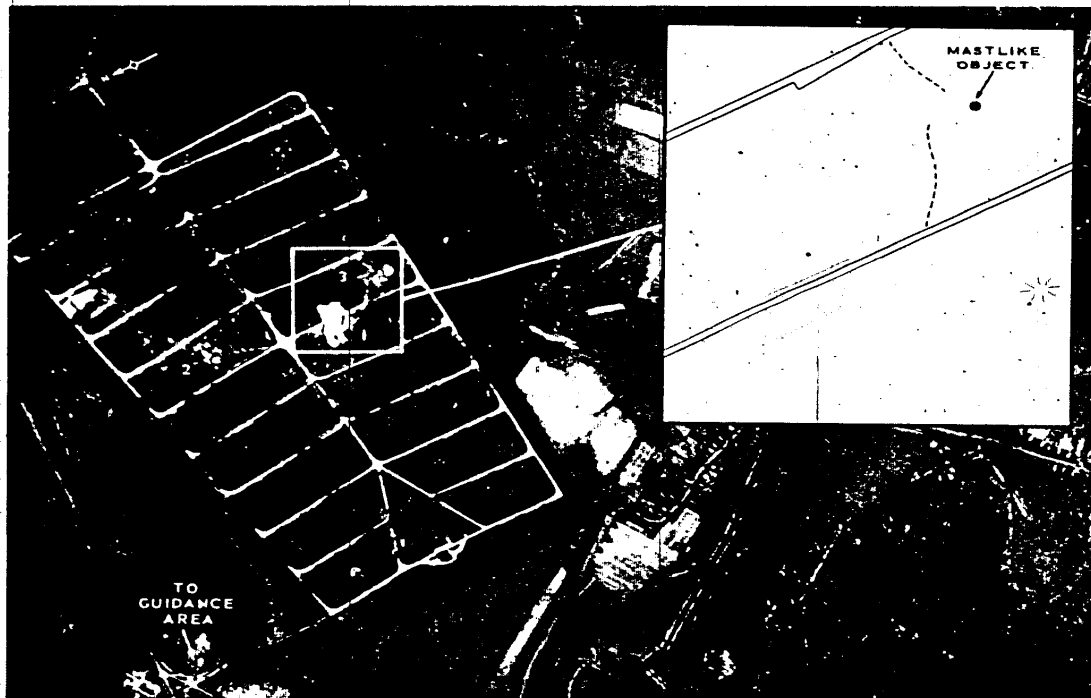


FIGURE 27. MOSCOW SAM SITE E08-1.

SAM SITE E08-1

Reanalysis of the revetment on the west side of rib road 5B (Figure 27, item 1), reveals that the revetment is a parallelogram with two 220-foot and two 110-foot walls. The walls are 20 feet wide at the base and approximately [REDACTED] high. The revetment was constructed by building three connecting walls on the west side of the road and a fourth wall across the rib road, permitting the rib road to provide a drive-through capability. This wall is 110 feet long and approximately [REDACTED] high. Orientation of the re-

vetment is [REDACTED] degrees.

Photography since [REDACTED] shows that construction on the previously reported probable roads connecting rib roads 5A and 6A has not progressed and was probably merely a linear ground scar (item 2). Photography of [REDACTED] revealed a mastlike object centered between rib roads 5B and 6B (item 3).

Missile equipment was observed in the launch area on [REDACTED] photography. No changes were observed in the support or guidance areas.

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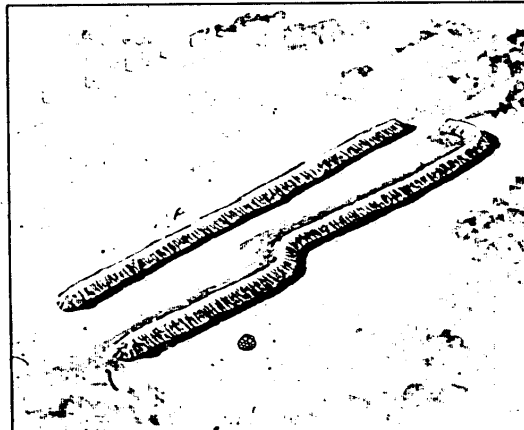
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SAM SITE E10A-1

25X1D A large revetment was identified on [REDACTED]
25X1D [REDACTED] photography in the previously
reported scarred area 1/ between rib roads
5B and 6B (Figure 28, item 1). Walls of the
revetment are of earthen construction and
measure 245, 255, 260, and 255 feet in length,
20 feet wide at the base, and approximately
10 feet high. Two 30-foot openings, one in
the west and one in the east wall, provide
road access to rib roads 5B and 6B. Orientation
of the revetment is [REDACTED] degrees.

25X1D On the same coverage, an earthen wall is
apparent, constructed around a structure on
the north side of the centerline between rib
roads 2A and 3A (item 2). The U-shaped
wall has segments measuring 85, 90, and 70
25X1D feet in length, and the walls are [REDACTED] wide

at the base and an estimated [REDACTED] high. 25X1D
Earth had been scraped up to an unde-
termined height on both sides of rib road 9A,



25X1D

FIGURE 28. MOSCOW SAM SITE E10A-1.

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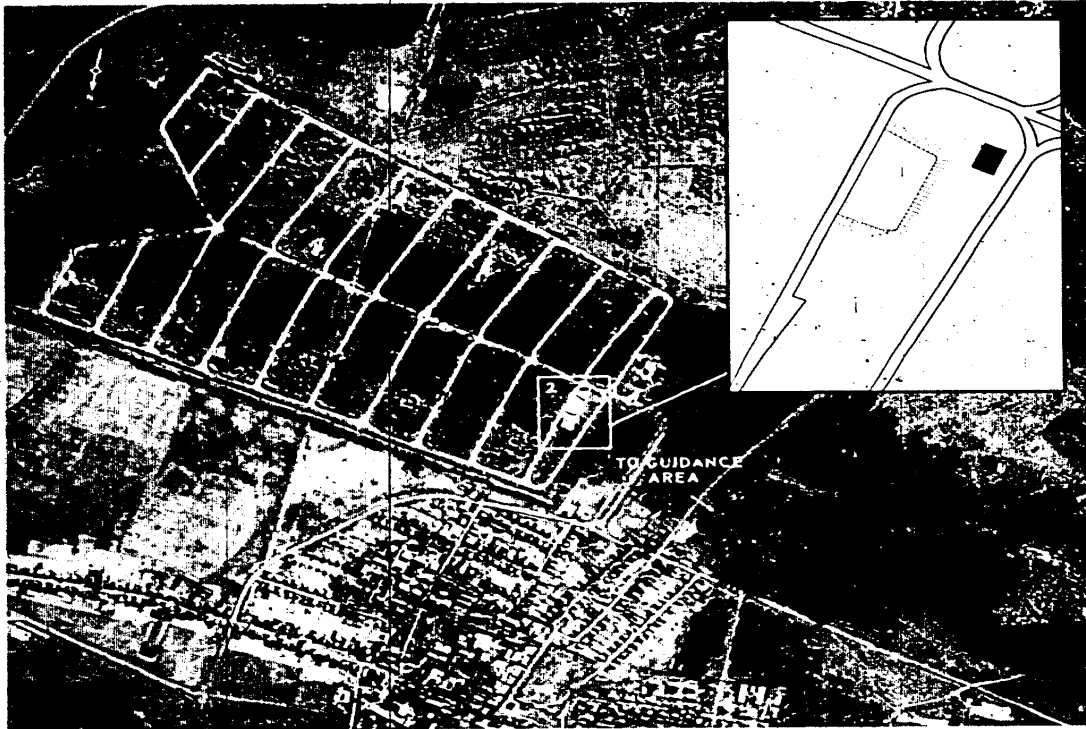


FIGURE 29. MOSCOW SAM SITE E10-1.

forming parallel earthen walls approximately 350 feet long (item 3), by [REDACTED]. These walls bracket launch positions 9A1 and 9A2, (see perspective) and create a drive-through revetment with an orientation of [REDACTED].

Missile equipment was observed in the launch area on coverages of [REDACTED].

SAM SITE E10-1

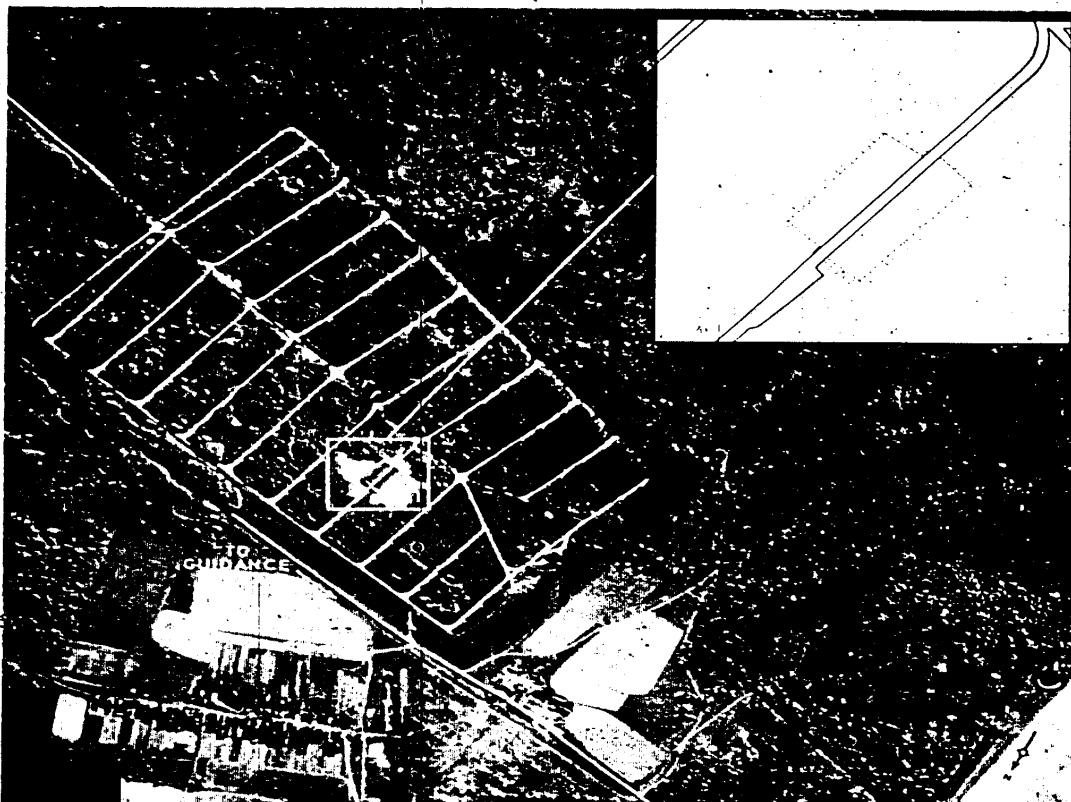
On photography of [REDACTED] a U-

shaped earthen revetment was identified on the west side of rib road 1A (Figure 29, item 2). The revetment walls are 110, 190, and 115 feet long, 20 feet wide at the base, and approximately 15 feet high. Orientation of the revetment is [REDACTED].

Missile equipment was observed in the launch area on [REDACTED] photography. No changes were apparent in the support or guidance areas.

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25X1D

FIGURE 30. MOSCOW SAM SITE E12-1.

SAM SITE E12-1

25X1D

On photography of [REDACTED] U-shaped earthen revetments were observed on opposite sides of rib road 3A (Figure 30, item 1) in the previously reported scarred area. 1/ The revetment on the west side of the rib road has walls 90 by 310 by 90 feet, 20 feet wide at the base, and estimated to be [REDACTED] high. Its eastern counterpart has walls

25X1D

95, 285, and 95 feet long, 20 feet wide at the base and approximately [REDACTED] high. By utilizing the existing rib road, a drive-through revetment has been built that is 310 feet long by 235 feet wide. Orientation of the revetment is [REDACTED]

25X1D

No changes were observed in the support or guidance areas. Missile equipment was observed in the launch area on the [REDACTED] coverage.

25X1D

25X1D

25X1D

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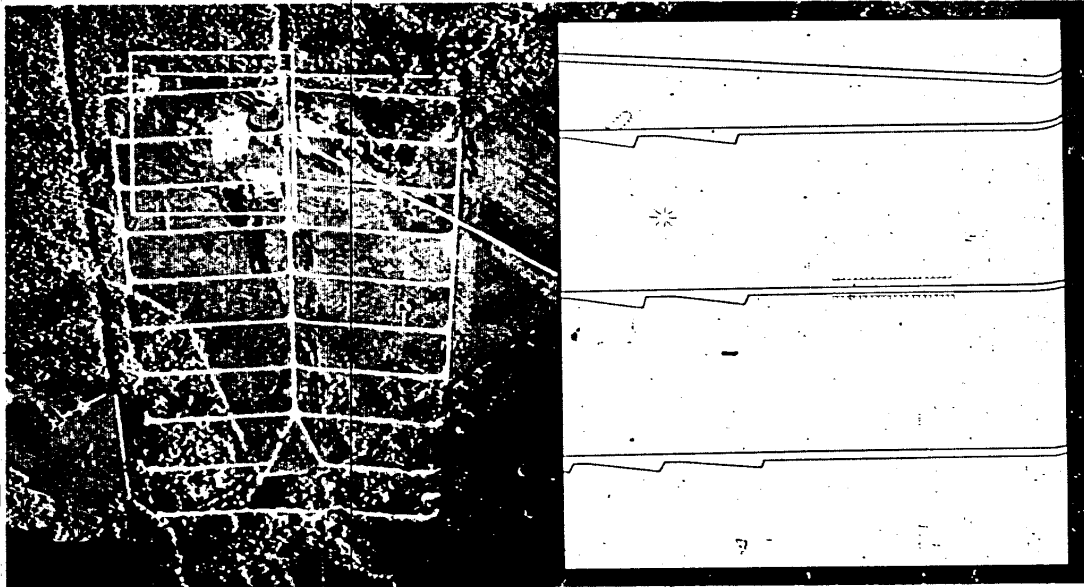


FIGURE 31. MOSCOW SAM SITE E13-1.

NPIC J-6376 (12/64)

SAM SITE E13-1

A horseshoe-shaped revetment was identified on photography of [REDACTED] in the previously reported scarred area 1/ between rib road 9A and the perimeter road (Figure 31, item 1). The revetment walls are 100, 50, and 100 feet in length and 20 feet wide at the base. The interior space between the two 100-foot walls is 20 feet wide; orientation of the revetment is [REDACTED] degrees.

On the same coverage it was evident that additional scarring had occurred on the west side of rib road 7A opposite the previously reported scarred area (item 2). At other sites this type of activity preceded construction

of earthen walls on either side of the rib road. Orientation of the rib road, which would provide access to a subsequent drive-through revetment, is [REDACTED] degrees.

Also on the same coverage, earth scarring was observed on opposite sides of rib road 8A (item 4). On subsequent coverages of [REDACTED] parallel earthen walls were identified on opposite sides of the road, creating a drive-through revetment 300 feet long with walls 20 feet wide at the base. Orientation of the revetment is [REDACTED] degrees.

No missile equipment was observed in the launch area between [REDACTED] nor were changes observed in the support or guidance areas.

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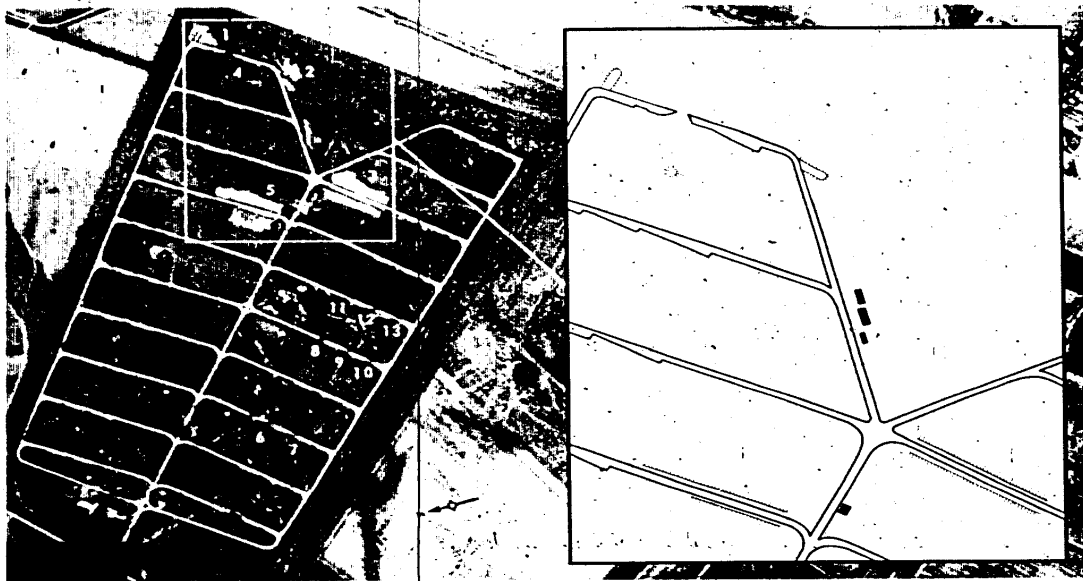


FIGURE 32. MOSCOW SAM SITE E14-1.

SAM SITE E14-1

Photography of [REDACTED] confirmed the existence of a horseshoe-shaped revetment at the northeast corner of the launch area (Figure 32, item 1). The revetment walls are 100, 50, and 95 feet long, [REDACTED] wide at the base, and an estimated [REDACTED] high. Orientation of the revetment is [REDACTED] degrees.

A second horseshoe-shaped revetment (item 2) was identified on the same photography 820 feet south of item 1, in the previously reported scarred area outside the perimeter road. Walls are 100, 45, and 110 feet long, and orientation of the revetment is [REDACTED] degrees.

Parallel earthen walls (item 3) were identified on opposite sides of rib road 8B. The walls were constructed by pushing earth up on both

sides of the road, creating a drive-through revetment 520 feet long with walls 20 feet wide at the base. Orientation of the revetment is [REDACTED] degrees.

Two parallel earthen walls have also been constructed on opposite sides of rib road 7A (item 5). One wall is 330 feet long, the other 575 feet long, but both are [REDACTED] wide at the base. Orientation of the drive-through revetment is [REDACTED] degrees.

Eight probable drive-through structures were identified on [REDACTED] photography, adjacent to launch positions 3B1, 3B2, 5B1, 5B2, 5B3, 6B1, 6B2, and 6B3 (items 6-13). Missile equipment was observed in the launch area on the [REDACTED] coverages. No changes were apparent within the support or guidance areas.

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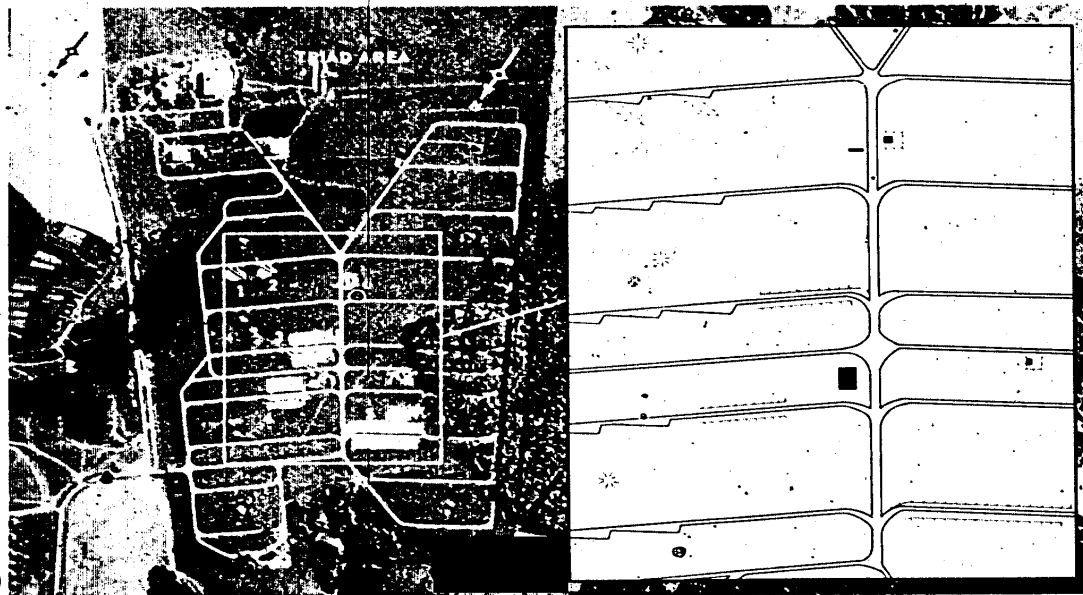


FIGURE 33. MOSCOW SAM SITE E15-1.

SAM SITE E15-1

Excluding consideration of the triad area, a number of changes have occurred in the launch area since the previous report. Some of this activity was reported; however, subsequent coverage permits more detailed analysis of the unidentified activity. The two excavations on the north side of rib road 9A (Figure 33, items 1 and 2) are now identified as horseshoe-shaped earthen revetments. Measurements for walls of the eastern one (item 1) are 150, 60, and 120 feet in length, [redacted] wide at the base, and an estimated [redacted] high. Orientation of this revetment is [redacted] degrees. The western revetment walls (item 2) are 125, 65, and 100 feet in length, [redacted] wide at the base and approximately [redacted] high. Orientation of the revetment

is [redacted] degrees. These two revetments are 270 feet apart, center-to-center.

Two parallel walls have been constructed on opposite sides of rib road 7A (item 3) and include the curved portion of the rib road leading from the centerline road. The walls were constructed by scraping earth up on both sides of the road to create a drive-through revetment. Walls are 365 and 340 feet in length; both are 20 feet wide at the base and approximately [redacted] high. Distance between walls is 60 feet, and orientation of the revetment is [redacted] degrees.

Similar construction has also taken place at rib road 5A (item 4). Walls of the revetment are 295 feet long, [redacted] wide at the base, and an estimated [redacted] high. The distance between walls is [redacted], and orientation of the

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25X1D



FIGURE 34. MOSCOW SAM SITE E16-1.

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25X1D revetment is [REDACTED] degrees.

A revetment along rib road 2B (item 5) is similar to the one at rib road 7A, also having one wall constructed to include the curved portion of road leading from the centerline road. Walls of the revetment are 555 and 615 feet in length, 15 feet wide at the base, and an estimated [REDACTED] high. Orientation of the revetment is [REDACTED] degrees.

25X1D

Earthen walls have been constructed around three sides of an unidentified structure (item 6) on the west side of the centerline road between rib roads 6B and 7B. The three walls are 70, 75, and 90 feet long. Similar construction has occurred around another unidentified structure, on the north side of rib road 4B (item 7). These three walls are 50, 70, and 50 feet long.

Missile equipment was observed in the launch area in [REDACTED]. No changes were observed in the guidance or support areas.

25X1D

SAM SITE E16-1

Four drive-through revetments were observed along rib roads on photography of [REDACTED].

25X1D

25X1D

25X1D

The revetment at rib road 5A (Figure 34, item 4) has walls 340 feet long, 75 feet apart, 15 feet wide at the base, and approximately [REDACTED] high. Orientation of the revetment is [REDACTED] degrees. The revetment at rib road 6A (item 5) has walls 340 feet long, [REDACTED] wide at the base, an estimated [REDACTED] apart. Orientation of the revetment is [REDACTED] degrees. A revetment along rib road 4B (item 6) has walls 390 feet long, [REDACTED] wide at the base, and estimated to be 15 feet high. The walls are [REDACTED] apart and the revetment has an orientation of [REDACTED] degrees. A revetment along rib road 5B (item 7) has walls 420 feet long, [REDACTED] apart, 15 feet wide at the base, and

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

approximately [REDACTED] high. Its orientation is [REDACTED] degrees.

In addition to the drive-through revetments, several smaller, horseshoe-shaped revetments were identified in the launch area on [REDACTED] photography. One is outside the perimeter road in the previously reported scarred area opposite rib road 9A (item 1). Walls of this revetment are 65, 55, and 70 feet long, and its orientation is 65/245 degrees. At the southeast corner of the perimeter road (item 8) a double horseshoe utilizing a common center wall has been constructed. The three parallel walls are 75 feet long and approximately 30 feet apart; the two bases are 80 feet long; and all walls are approximately 20 feet wide at the base. Orientation of the revetment is [REDACTED] degrees. A horseshoe-shaped revetment on the south side of rib road 7A (item 9) is 65, 50, and 45 feet long and is oriented [REDACTED] degrees. Between rib roads 5A and 6A (item 10), there is a revetment with walls 60, 45, and 65 feet long which is oriented [REDACTED] degrees. On the north side of rib road 4A (item 11) there is another revetment with walls 60, 45, and 65 feet long. Its orientation is [REDACTED] degrees. A revetment between rib roads 5B and 6B (item 12) south of item 7, has walls 55, 40, and 60 feet in length and is oriented 170/350 degrees. Two probable drive-through structures were identified, adjacent to launch position 5A1 (item 13) and 4B1 (item 2).

Missile equipment was observed in the launch area on the [REDACTED] coverages. No changes were apparent in the support or guidance areas.

SAM SITE E17-1

Two horseshoe-shaped revetments were identified on photography of [REDACTED] in the previously reported scarred area at the southeast corner of the launch area (Fig-

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

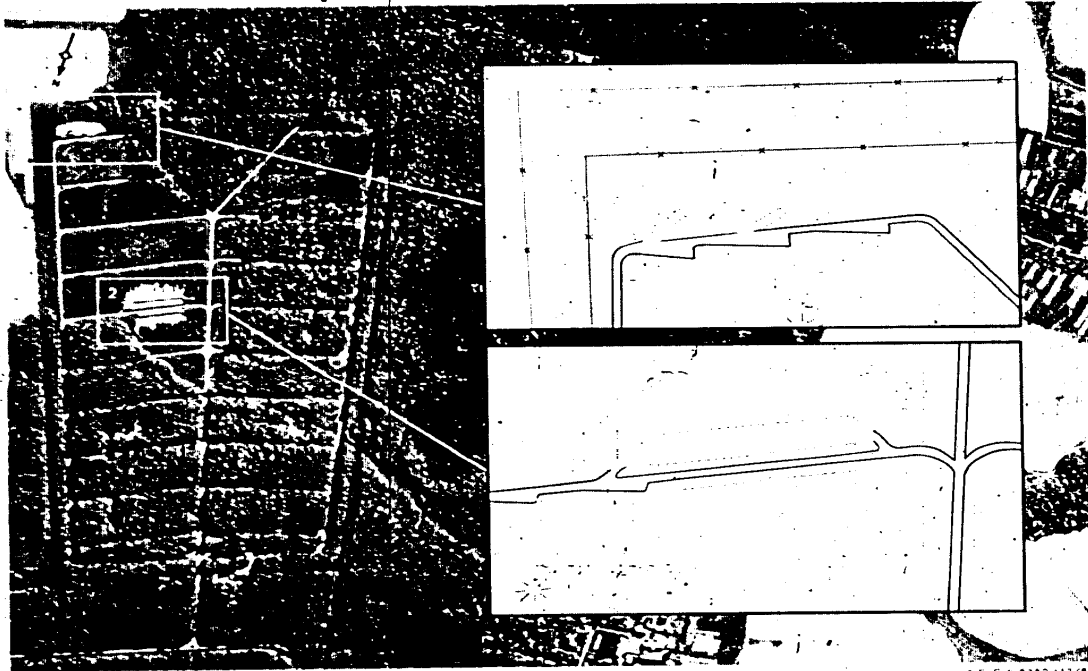


FIGURE 35. MOSCOW SAM SITE E17-1.

ure 35, item 1). The west revetment has walls 150, 55, and 150 long and approximately 20 feet wide at the base. Orientation of the revetment is [REDACTED] degrees. The east revetment has walls measuring 90, 50, and 75 feet long and 20 feet wide at the base. Orientation is [REDACTED] degrees.

On the same coverage, a rectangular drive-through revetment was observed on the south side of rib road 6A (item 2). The revetment parallels the rib road and has [REDACTED] openings on the east and west ends that permit road connections with the rib road. The revetment is 485 feet long and has walls 20 feet wide at the base and approximately [REDACTED] high. Orientation of

the revetment is [REDACTED] degrees. Across rib road 6A, in the area of previous scarring, a 415-foot earthen wall, 30 feet wide at the base and approximately [REDACTED] high, has been constructed parallel to the rib road. A combination of this 415-foot wall with the northern wall of the 485-foot rectangular revetment creates a drive-through revetment 415 feet long with walls approximately [REDACTED] high and an orientation of [REDACTED] degrees.

Missile equipment was not observed on coverages of [REDACTED]. No changes were observed in the support or guidance areas.

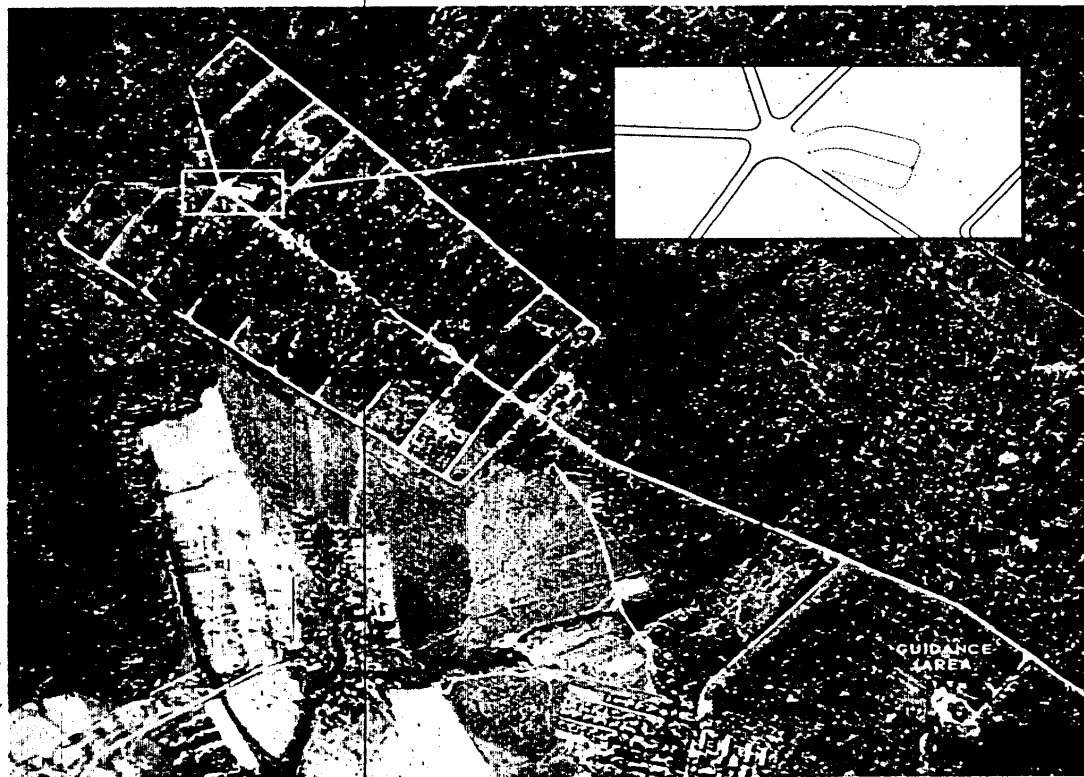


FIGURE 36. MOSCOW SAM SITE E18-1.

SAM SITE E18-1

25X1D

On photography of [REDACTED] two curved earthen revetments were identified in the previously reported scarred area between rib roads 7B and 8B (Figure 36, item 1). The two revetments were constructed by building a U-shaped revetment and then dividing it with a single curved wall which became a common wall to both revetments. Overall length of the revet-

ments is 235 feet, with walls 20 feet wide at the base and an estimated [REDACTED] high. The interior distance for each revetment from wall to wall is 50 feet and road access is from the centerline road. Orientation of the revetments is [REDACTED] degrees.

Missile equipment was observed in the launch area on photography of [REDACTED]. No changes were apparent within the support or guidance areas.

25X1D

25X1D

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25X1D

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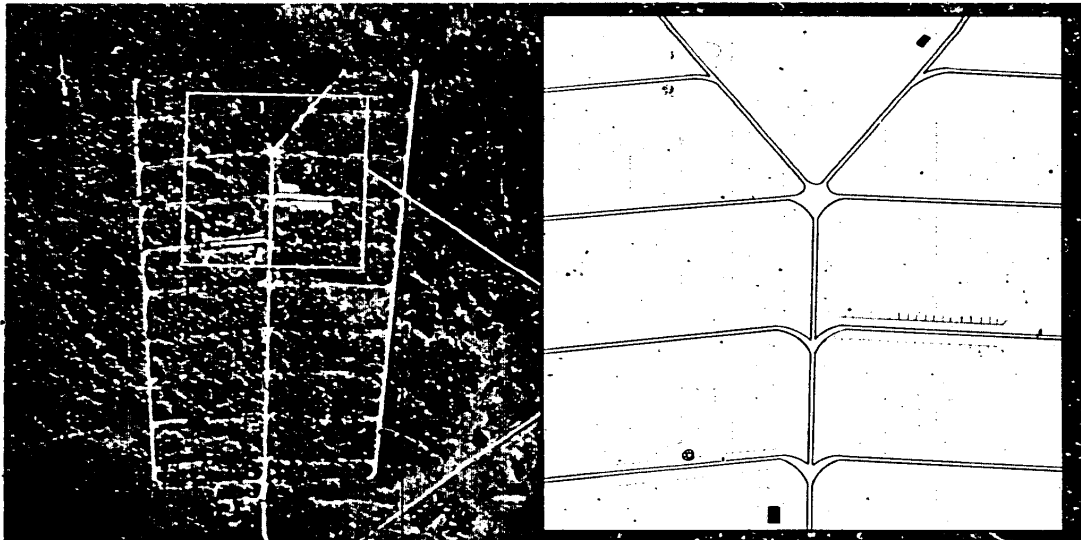


FIGURE 37. MOSCOW SAM SITE E19-1.

SAM SITE E19-1

25X1D On photography of [REDACTED] a possible horseshoe-shaped revetment was observed in the previously reported scarred area outside the perimeter road, near rib road 9A (Figure 37, item 1). Vegetation obscured the outer limits of the revetment and it is not possible to provide measurements, but its approximate orientation is [REDACTED] degrees.

25X1D At rib road 6A two parallel earthen walls have been constructed on opposite sides of the road (item 2), creating a drive-through revetment which has an orientation of [REDACTED]. The southern wall is approximately 660 feet long and has been extended to include the curve at the intersection with the centerline road. The other wall measures 640 feet in length. Both walls are [REDACTED] wide at the base and approximately [REDACTED] high.

25X1D
25X1D

South of rib road 7B, an earthen wall 665 feet long had been constructed parallel to the road by [REDACTED] (item 3). The wall is [REDACTED] wide at the base and approximately [REDACTED] high. Subsequently, on photography of [REDACTED] a second earthen wall was observed across the road, forming a drive-through revetment 665 feet long with walls [REDACTED] wide at the base and approximately [REDACTED] high. Orientation of the revetment is [REDACTED] degrees.

Missile equipment was observed in the launch area on photographic coverages of [REDACTED]. No changes were apparent in the guidance or support areas.

SAM SITE E20-1 (NO FIGURE)

There has been no apparent change at any area of this site since [REDACTED]. Missile equipment was observed in the launch area on [REDACTED] coverages.

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

25X1D

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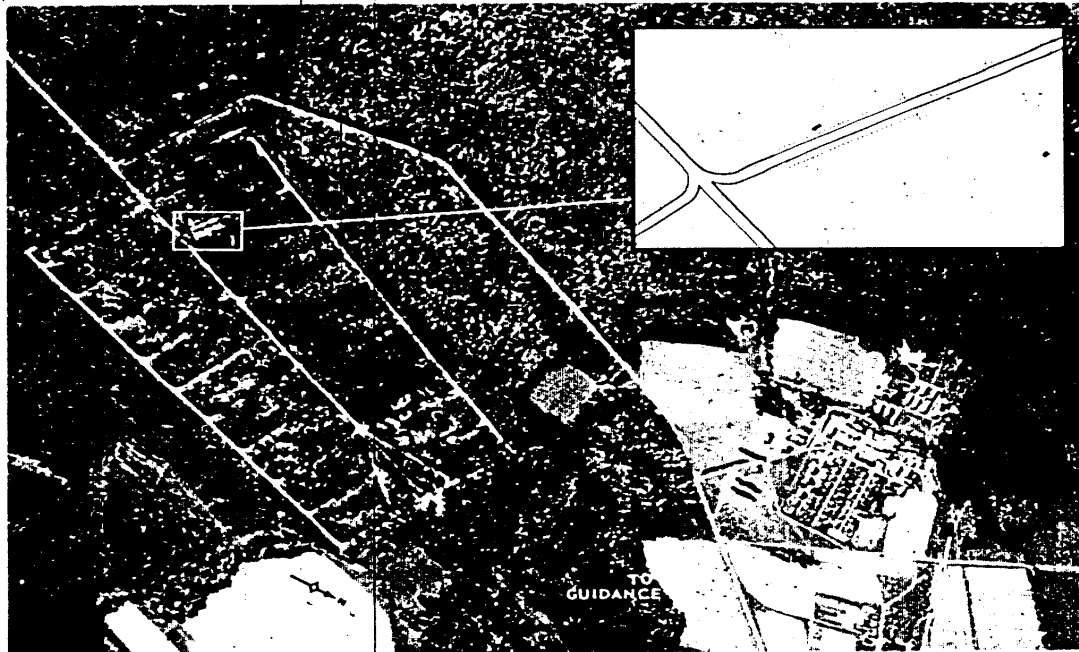


FIGURE 38. MOSCOW SAM SITE E21-1.

SAM SITE E21-1

SAM SITE E22-1

Two parallel earthen walls on opposite sides of rib road 8B (Figure 38, item 1) were observed on photography of [REDACTED]. The walls had been constructed by pushing earth up from the sides of the road, in effect creating a drive-through revetment 50 feet wide, 350 feet long, with walls 20 feet wide at the base and estimated to be [REDACTED] high. The orientation of the revetment is 120/300 degrees. Missile equipment was observed within the launch area on [REDACTED] photography. No changes have been apparent within the support or guidance areas since [REDACTED].

The previously reported 1/ probable revetment located between rib roads 4B and 5B (Figure 39, item 2) has been confirmed as a U-shaped revetment on the [REDACTED] coverage. The walls are 230, 170, and 230 feet long, 20 feet wide at the base, and approximately 15 feet high. Orientation of the revetment is [REDACTED] degrees.

On the same coverage, a horseshoe-shaped revetment was identified in the woods on the south side of the perimeter road at the southeast corner of the launch area (item 3). No measurements are provided for the revetment

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FIGURE 39. MOSCOW SAM SITE E22-1.

25X1D because heavy growth of vegetation in the area obscures the boundaries, but an approximate orientation of [REDACTED] degrees is estimated.

25X1D No missile equipment was seen in the launch area on [REDACTED] photography. No changes were apparent in the support or guidance areas.

SAM SITE E23-1

25X1D Photography of [REDACTED] revealed a horseshoe-shaped earthen revetment in the

previously reported scarred area between rib road 9A and the perimeter road (Figure 40, item 1). Walls are 120, 60, and 95 feet long, [REDACTED] wide at the base, and estimated to be [REDACTED] high. Orientation of the revetment [REDACTED] degrees.

The L-shaped scarring reported at rib roads 5A, 6A, and 7A has developed into a large L-shaped earthen revetment (item 4). The southern wall of the base of the revetment, along the south side of rib road 7A, is 465

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feet long; the wall across the road is 340 feet long and constructed to permit continued use of rib road 7A. The stem of the L consists of two parallel walls, segmented into 425- and 435-foot sections to permit rib road 6A to pass through. Walls of the revetment are 20 feet wide at the base and approximately 15 feet high. Orientation of the base is 135/315 degrees, and orientation of the stem is 25X1D degrees.

25X1D

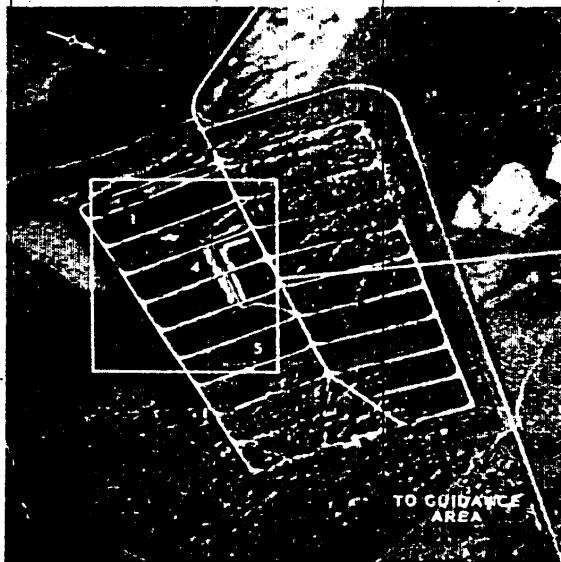
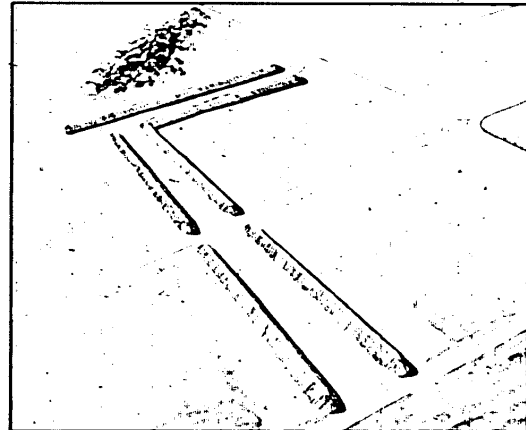
A second horseshoe-shaped revetment was identified on the 25X1D photography at the previously reported scarring opposite 3A (item 5). Walls of the revetment are 80, 50, and 80 feet long, 25X1D wide at the base, and approximately 25X1D high. Orientation of the revetment is 25X1D degrees.

25X1D

Missile equipment was not observed on the

coverages. No changes were apparent in the guidance or support areas.

25X1D



25X1D

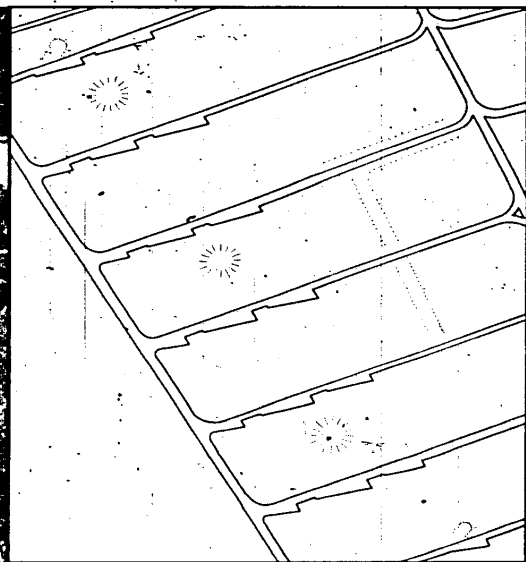


FIGURE 40. MOSCOW SAM SITE E23-1.

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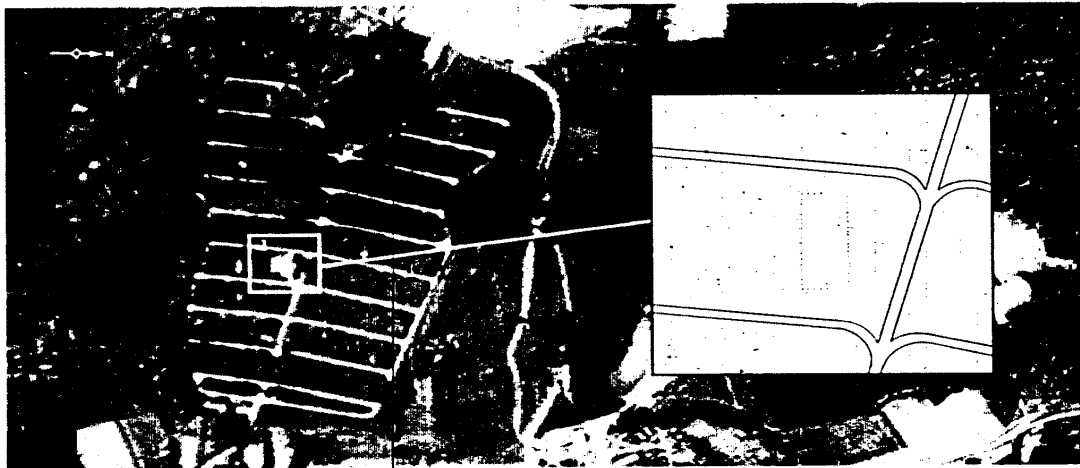


FIGURE 41: MOSCOW SAM SITE E28-1.

SAM SITE E24-1 (NO FIGURE)

25X1D SAM Site E24-1 has had no apparent change
25X1D in the launch area since [REDACTED] except
for the previously reported Possible AMM-
Associated Electronic Facility. 4/ Missile
25X1D equipment was not observed on the [REDACTED]
25X1D [REDACTED] coverages.

25X1D An SA-3 SAM site of the G configuration
25X1D was identified on the [REDACTED] photography,
just west of the launch area and on the north
side of the launch site service road.

SAM SITE E25-1 (NO FIGURE)

25X1D [REDACTED] missions have covered this site since
25X1D the previous report, 1/ but on the first [REDACTED]
25X1D [REDACTED] the site was obscured by heavy
clouds and cloud shadow and photography over
25X1D the site from the second [REDACTED] was
of poor quality. No changes were apparent at
the site, nor was missile equipment discernible
or either of the coverages. 6

SAM SITE E26-1 (NO FIGURE)

Since [REDACTED] this site has been seen only 25X1D
[REDACTED] at which time heavy clouds 25X1D
and cloud shadow obscured the area precluding
any determination of the status of previously
reported construction activity. 1/ Missile
equipment was not discernible.

SAM SITE E27-1 (NO FIGURE)

This site has been seen only once [REDACTED] 25X1D
[REDACTED] since the previous report 1/ and 25X1D
the coverage was of poor image quality over
the site. No changes were observed, nor was
missile equipment discernible.

SAM SITE E28-1

Photography of [REDACTED] permitted re- 25X1D
finement of the measurements for the previously
reported earthen revetment between rib roads
4A and 5A (Figure 41, item 1). The drive-through
revetment, which is generally rectangular, has

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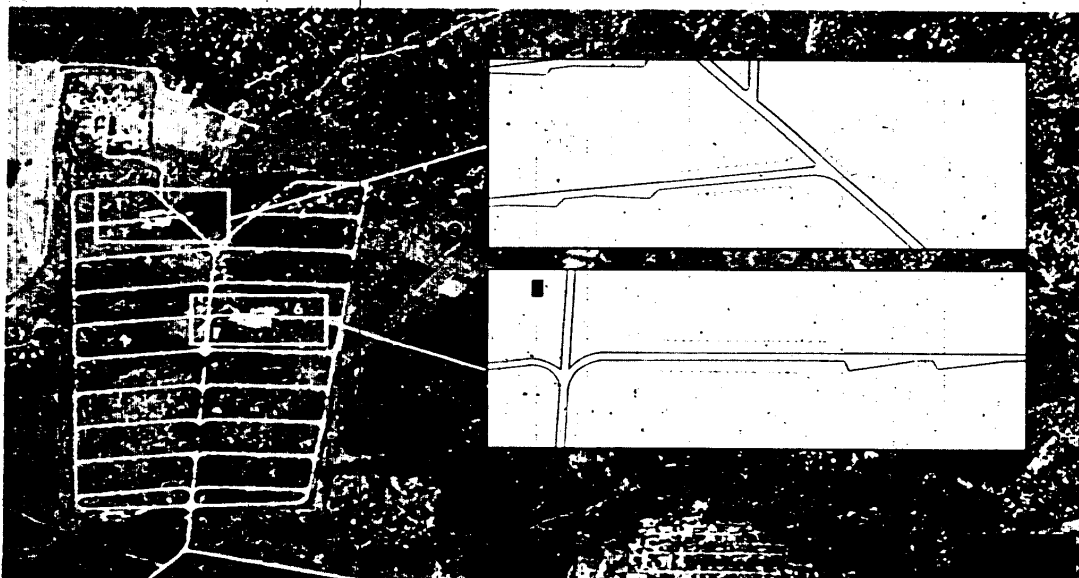


FIGURE 42. MOSCOW SAM SITE E30-1.

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an overall length of 230 feet and is 95 feet wide. Two 35-foot wide openings, one in the west wall and the other in the east wall, permit a 20-foot wide road to pass through the revetment and connect with rib roads 4A and 5A. Revetment walls are 20 feet wide and estimated to be 20 feet high. Orientation of the revetment is [REDACTED] degrees.

Missile equipment was not discernible on the [REDACTED] photography, nor have any changes been observed in the guidance or support areas since [REDACTED].

SAM SITE E30-1

On photography of [REDACTED] parallel walls were identified in the previously reported scarred area 1/ on both sides of rib road 9A (Figure 42, item 1), creating a drive-through

revetment with an orientation of [REDACTED] degrees. Walls of the revetment are 260 feet long and [REDACTED] feet wide at the base. Across the perimeter road from rib road 9A, there is an earthen wall approximately 100 feet long.

A drive-through revetment has been constructed in the previously reported scarred area along both sides of rib road 6B (item 6). Both walls are 395 feet long and 20 feet wide at the base. Orientation of the revetment is [REDACTED] degrees. Parallel to the centerline road between rib roads 5B and 6B (item 7) an earthen wall approximately 200 feet long has been constructed.

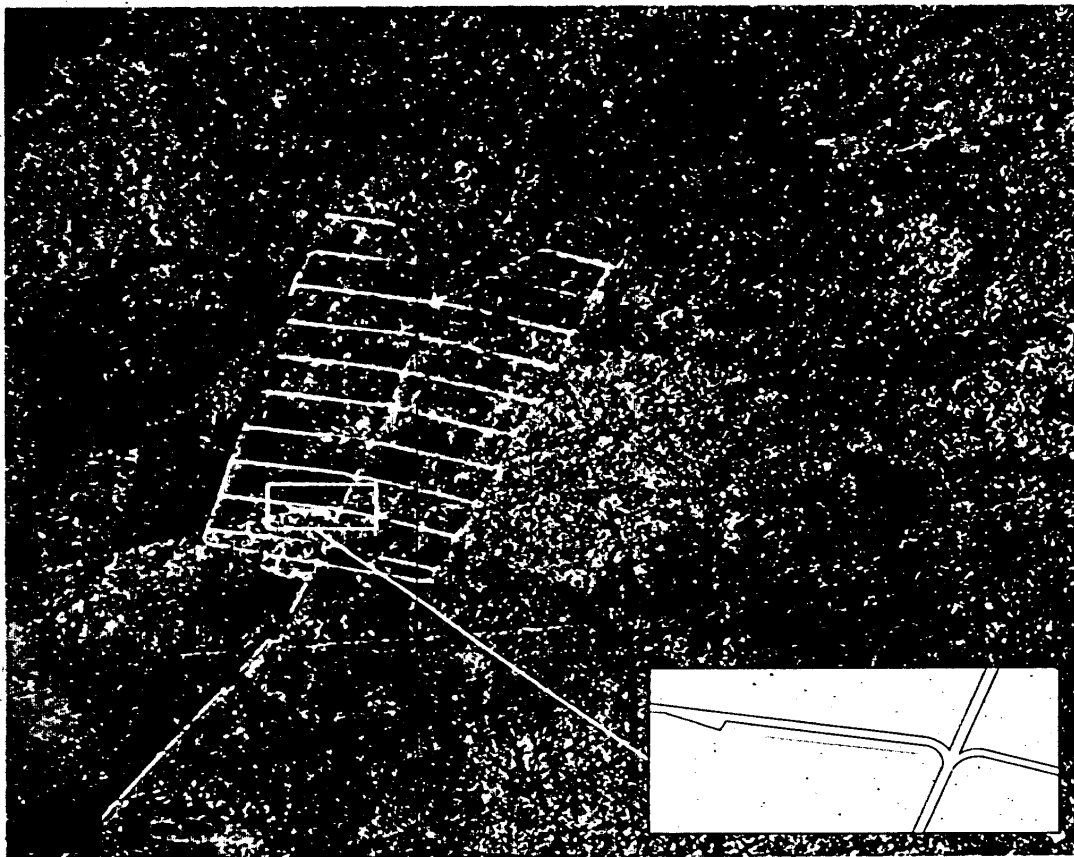
Missile equipment was not discernible on the [REDACTED] photography. No changes were observed in the support or guidance areas.

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25X1D

FIGURE 43. MOSCOW SAM SITE E31-1.

SAM SITE E31-1

25X1D An earthen wall had been constructed parallel to the east side of rib road 2A (Figure 43, item 1) by [REDACTED] by pushing up earth from the cleared area. The wall is 425 feet long and 20 feet wide at the base.

Later construction of a second wall, on the opposite side of the road, would create a drive-through revetment having an orientation of [REDACTED] degrees.

No changes were observed in the support or guidance areas, nor was missile equipment discernible on the [REDACTED] coverage.

25X1D

25X1D

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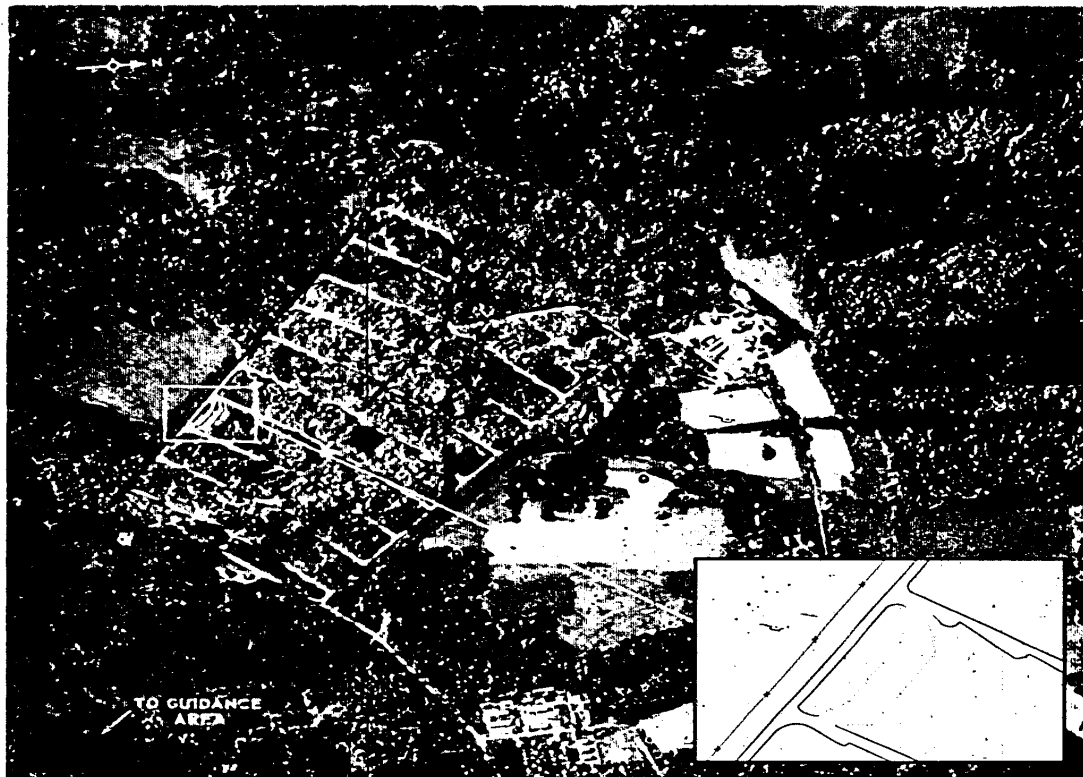


FIGURE 44. MOSCOW SAM SITE E32-1.

SAM SITE E32-1

Photography of [REDACTED] permits refinement of the measurements of the drive-through revetment along the perimeter road between rib roads 3A and 4A (Figure 44, item 1). The revetment has narrow openings at the north and south ends; the south opening is 35 feet wide, the north one is [REDACTED] wide. The west wall is constructed of three segments: the south, forking from the perimeter road and

rib road 3A, is 90 feet long; the middle segment is 235 feet long; and the north segment is 115 feet long. Segments of the western wall are 115, 315, and 130 feet long. The walls are 20 feet wide at the base and approximately [REDACTED] feet high. Orientation of the revetment is [REDACTED] degrees.

No missile equipment was discernible, on photography of [REDACTED] and no changes are apparent in the support or guidance areas.

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FIGURE 45. MOSCOW SAM SITE E34-1.

SAM SITE E33-1

(See page 48)

SAM SITE E34-1

Previously reported scurrying 1/ located on both sides of the perimeter road (Figure 45, item 1) appears dark toned on photography of [REDACTED] but probable walls were noted on both sides of the road. Although the walls are not clearly defined, they are estimated to be 985 feet long, and they form a drive-through revetment with an orientation of [REDACTED] degrees.

On the same coverage, a rectangular earthen revetment was identified opposite rib road 6B (item 2). The revetment measures 425 by 85 feet with walls 20 feet wide at the base and

approximately [REDACTED] high. Orientation of the revetment is [REDACTED] degrees. A 145-foot earthen wall (item 3) has been constructed near the junction of the centerline road with rib road 4B.

Missile equipment was observed in the launch area on the [REDACTED] coverage. No changes were observed in the support or guidance areas.

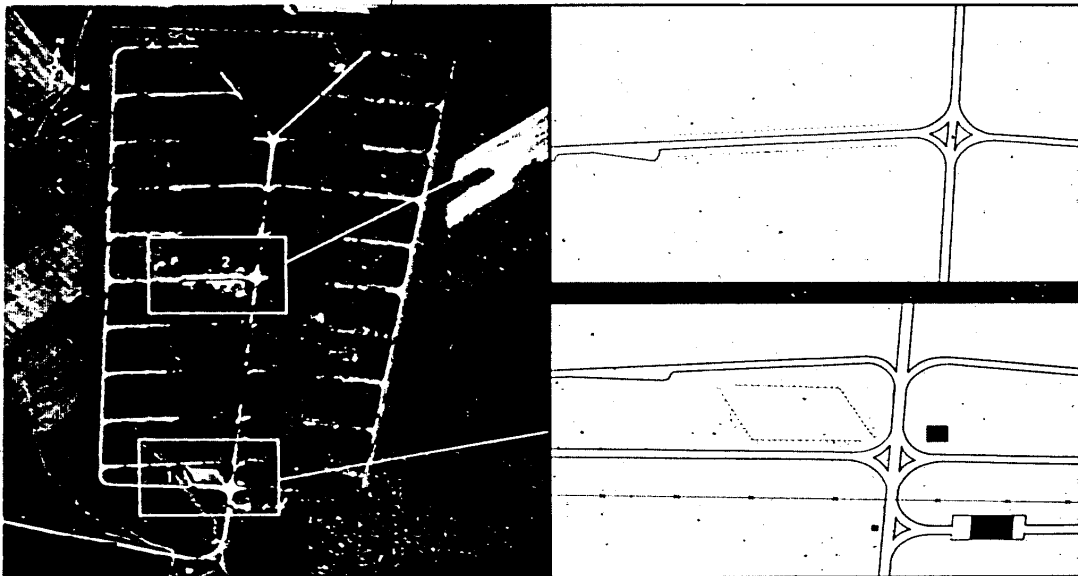
SAM SITE E35-1 (NO FIGURE)

There has been no apparent change in this site since [REDACTED]. Missile equipment was observed in the launch area on the [REDACTED] coverage.

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25X1D

SAM SITE E36-1

25X1D

Photography of [REDACTED] permits a refinement of previously reported measurements for the earthen revetment between rib road 1A and the perimeter road (Figure 46, item 1). The revetment is a parallelogram with two sides 270 feet long and two 165 feet long. Walls of the revetment are 25 feet wide at the base and approximately [REDACTED] high. Orientation of the revetment is [REDACTED] degrees.

25X1D

25X1D

On the same coverage, two parallel earthen walls were observed in the previously reported scarred area along rib road 5A (item 2). The walls were constructed by pushing earth toward the rib road, creating a drive-through revetment whose walls are 580 feet long, 50 feet apart, 20 feet wide at the base, and approximately [REDACTED] high. Orientation of the revetment is [REDACTED] degrees.

25X1D

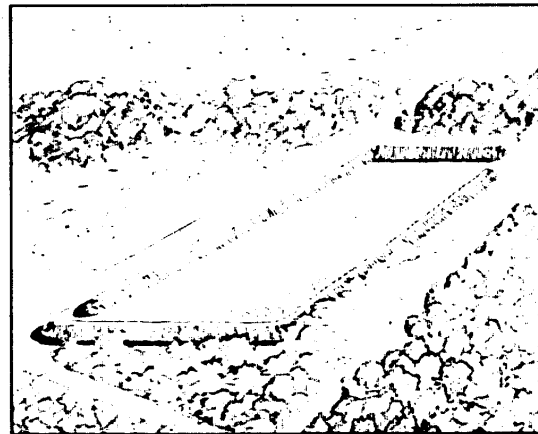


FIGURE 46. MOSCOW SAM SITE E36-1.

Missile equipment was observed in the launch area on the [REDACTED] coverage. 25X1D

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POSSIBLE AMM-ASSOCIATED ELECTRONIC FACILITIES
AT SAM SITES E05-1 AND E33-1

25X1D

Photography of [REDACTED] revealed a significant addition underway at the possible AMM-associated electronic facilities at SA-1, SAM Sites E05-1 and E33-1. On that photography it became evident that a second triad was being constructed at the same end of the launch area as the original at each site, probably similarly oriented and approximately the same size. Photography of the same date revealed no comparable construction at SAM Site E15-1, and the coverage of Site E24-1 was of poor image quality, badly blurred.

Details regarding SAM Sites E05-1 and E33-1 follow.

SAM SITE E05-1

25X1D

Three clearings, probably the preliminary construction for a second triad of buildings, were apparent in the northeast corner of the launch area; on photography of [REDACTED]. The largest clearing (Figure 47, item 1) is 2,150 feet south of the largest building of the existing triad. The clearing covers an area of approximately 400 by 170 feet; the two smaller clearings, in line with the smaller buildings of the existing triad, measure 125 by 115 feet and 125 by 85 feet. The clearings form a triangle with two sides 850 feet long and one side 910 feet long, which is somewhat smaller than the existing triangle whose sides are 1,025, 855, and 815 feet long. Review of earlier photography indicates no sign of the clearings in [REDACTED].

25X1D

A drive-through revetment has been constructed between rib roads 4A and 5A (item 2), with 30-foot openings in the east and west walls providing access to the roads. Walls of the revetment are 20 feet wide at the base and are estimated to be [REDACTED] high. Orientation of the revetment is 45/225 degrees.

25X1D

No changes have been observed in the support or guidance areas since [REDACTED]. Missile equipment was observed in the launch area on photography of [REDACTED].

25X1D

25X1D

25X1D

SAM SITE E33-1

(See page 48)

Since the [REDACTED] coverage of this site, previously reported, 5/ construction has begun on a second triad, on the east side of the launch area and generally in line with the existing triad. The probable foundation for the large building measures 225 by 140 feet (Figure 48, item 3) and is 2,030 feet from its counterpart on the west side of the launch area. Two clearings complete the triad, the western one (item 4) covering an area 210 by 155 feet, and the eastern (item 5) covering an area 320 by 240 feet. An imaginary line connecting the centers of the two clearings and the probable foundation would form a triangle with sides 790, 905, and 870 feet long, comparable to the western triad's measurements of 800, 1,015 and 860 feet. Additional roads to serve the new triad were under construction in [REDACTED] and there was indication of clearing for the large building during that time.

25X1D

Photography of [REDACTED] shows that on the ground at the northwest corner of the existing large triad building there is a structure that is probably intended for use as an environmental cover (item 6), after a radar is installed on the elevated platform. The structure appears to be cylindrical, 120 feet in diameter, and an estimated [REDACTED] high. It possibly contains a recessed dome.

25X1D

25X1D

There is a U-shaped revetment at rib road 5B (item 2) which measures 185 by 115 by 215 feet, has walls 20 feet wide at the base, and

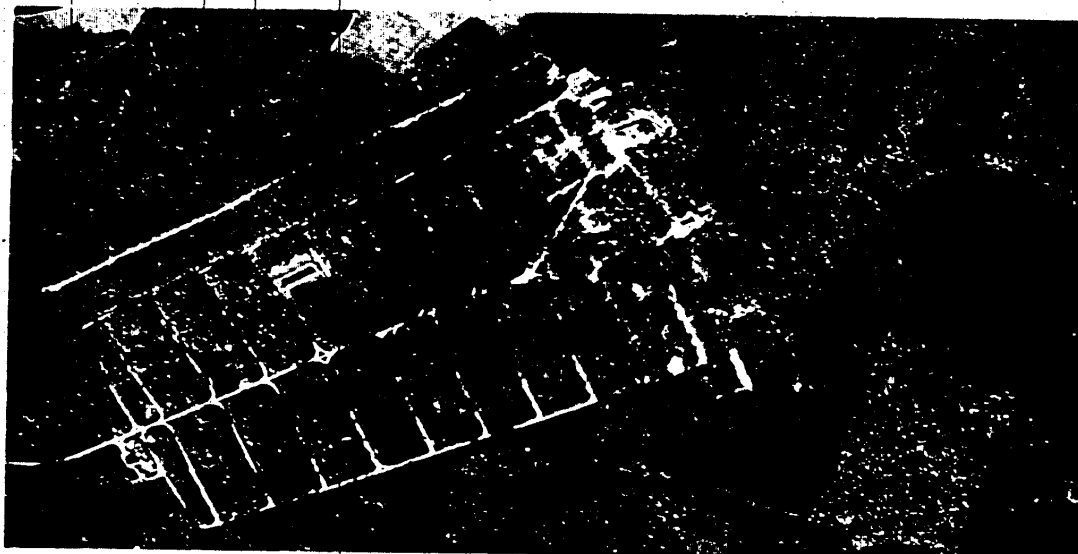
25X1D

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25X1D

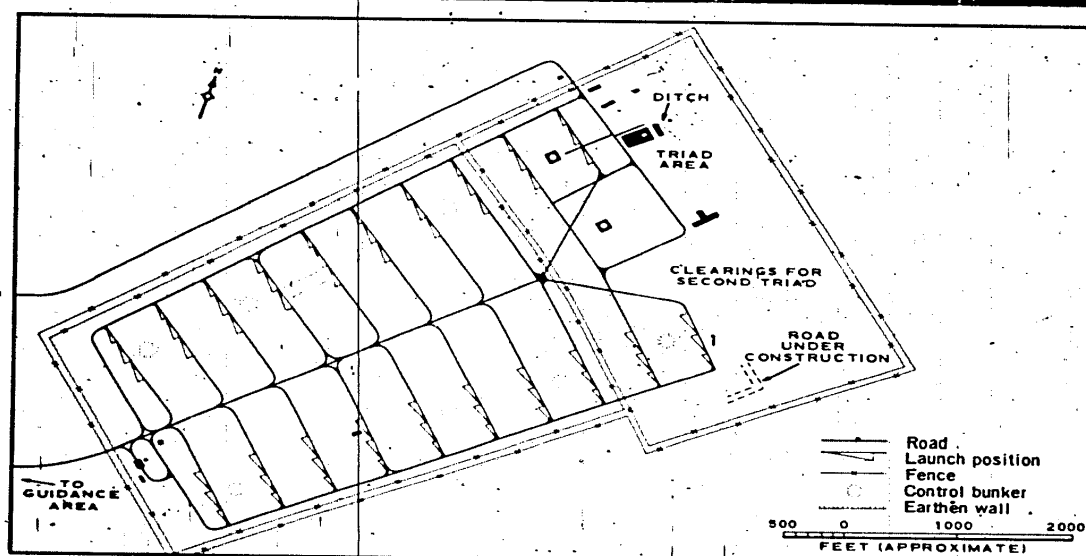


FIGURE 47. MOSCOW SAM SITE E05-1.

- 4 -

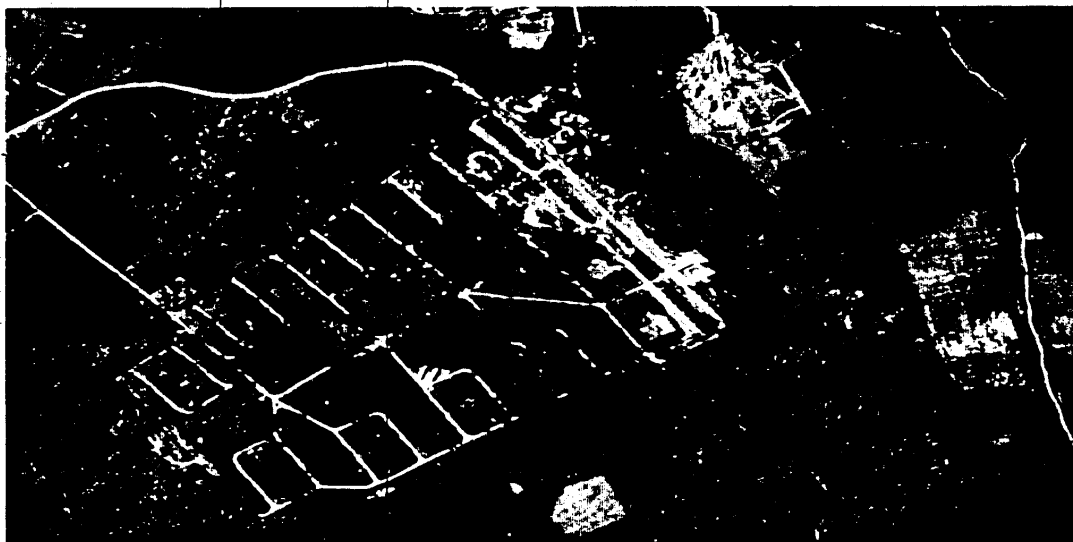
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25X1D

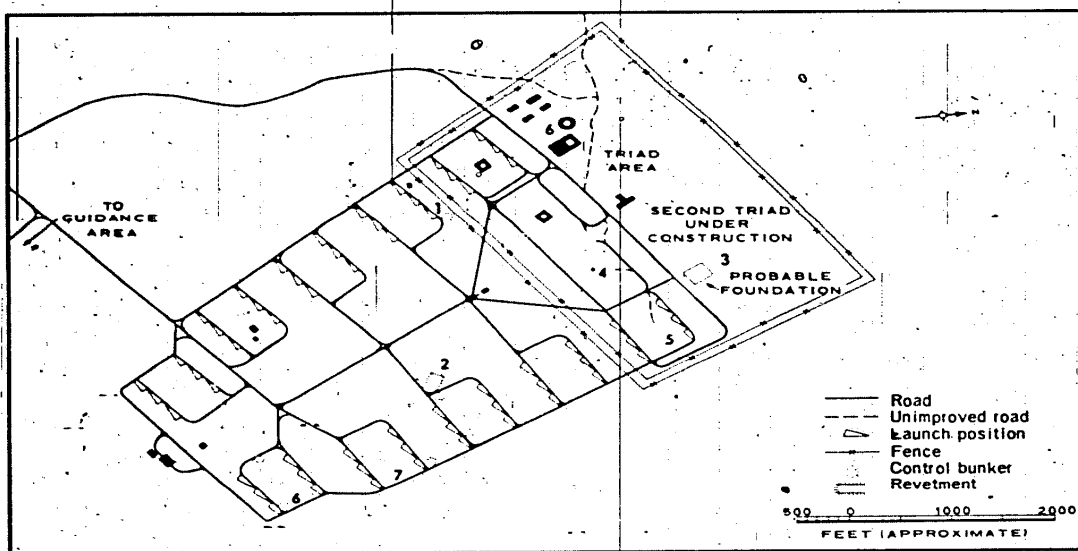


FIGURE 45. MOSCOW SAM SITE E33-1.

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25X1D is estimated to be [REDACTED] high. Orientation of
25X1D the revetment is [REDACTED] degrees. Three other
horseshoe revetments are located north of rib
road 9A (item 1), and near the perimeter road
at its junctions with rib roads 1B (item 6)

and 4B (item 7).

No change has been observed in the support
or guidance areas since [REDACTED] Missile
equipment was evident in the launch area on
photography of [REDACTED]

25X1D

25X1D

CONCLUSIONS

On the basis of this survey of the changes
taking place at the Moscow SA-1 SAM sites,
the following conclusions can be drawn:

A major modification of the Moscow SA-1
sites, consisting primarily of the construction of
earthen revetments, is underway with no ap-
parent disruption of the operational capability
of the sites.

25X1B [REDACTED]

25X1B

The construction of additional building
triads at sites E05-1 and E33-1, evident on
[REDACTED] photography, indicates a con-
tinuing construction program for the possible
AMM-associated electronic facilities.

25X1D

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REFERENCES

25X1D

25X1C

MAPS OR CHARTS

- DIA. US Air Target Chart, Series 200, Sheet 0154-22HL, 2d ed, Mar 63, scale 1:200,000 (SECRET)
- DIA. US Air Target Chart, Series 200, Sheet 0154-23HL, 2d ed, Apr 63, scale 1:200,000 (SECRET)
- DIA. US Air Target Chart, Series 200, Sheet 0167-4HL, 2d ed, Mar 63, scale 1:200,000 (SECRET)
- DIA. US Air Target Chart, Series 200, Sheet 0167-10HL, 2d ed, Feb 63, scale 1:200,000 (SECRET)
- DIA. US Air Target Chart, Series 200, Sheet 0167-5HL, 2d ed, Apr 63, scale 1:200,000 (SECRET)

DOCUMENTS

- 1. NPIC. R-836 64, *Unidentified Activity at SA-1 SAM Sites, Moscow, USSR*, Sep 64 (TOP SECRET CHESS RUFF)
- 2. NPIC. R-103 64, *Possible Antimissile Missile Associated Facilities, Moscow Area, USSR*, Feb 64 (TOP SECRET CHESS RUFF)
- 3. NPIC. R-71 64, *SA-1 SAM Sites, Moscow, USSR, Southwest Quadrant*, Feb 64 (TOP SECRET RUFF)
- 4. NPIC. R-706 64, *Possible AMM-Associated Electronic Facilities, Moscow, USSR*, [REDACTED] Aug 64 (TOP SECRET CHESS RUFF)
- 5. NPIC. R-918 64, *Possible AMM-Associated Activity and Other Installations, Moscow, USSR*, [REDACTED] Nov 64 (TOP SECRET CHESS RUFF)

25X1D

25X1D

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